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PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN THE

CENTRAL PROVINCES,

1863-64.

By Captain G. F. PEARSON, 33rd M. N. I.,

CONSERVATOR OF FORESTS, CENTRAL PROVINCES,

ACCOMPANIED BY A MEMORANDUM THEREON
BY Dr. D. BRANDIS,

INSPECTOR GENERAL OF FORESTS,

TO WHICH IS APPENDED A REPORT BY Dr. BRANDIS ON HIS DEPUTATION TO THE CENTRAL PROVINCES IN 1863-64.

Calcutta:
PUBLIC WORKS DEPARTMENT,
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PROGRESS REPORT

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1863-64.

BY CAPTAIN G. F. PEARSON, 33RD. M. N. I.,

CONSERVATOR OF FORESTS, CENTRAL PROVINCES.

No. 3109, dated 7th July, 1864.

From—CAPTAIN HECTOR MACKENZIE, *Secy. to Chief Commr., Central Provinces,*

To—*Secretary to Government of India, P. W. Dept.*

I am directed to annex copy of the Conservator of Forests Annual Report on the Forest Department of these Provinces for the year 1863-64, for the information of His Excellency the Viceroy and Governor General in Council, and to submit the following remarks.

2. The Report consists of two parts. The 1st part, paras. 1 to 13, embraces a sketch of the progress made during 1863-64. In the 2nd part, paras. 14 to the end, the Conservator, before his departure on sick leave to England, records his views on those points which seem particularly to demand attention during the present year.

Paras. 1—13.—Sketch of progress.
Paras 14—end.—Special points requiring attention.

3. The actual result of the past year's operations may not appear to be great, but Mr. Temple believes that in the preliminary work of exploring and inspecting the various Forests of these Provinces, with a view to laying a sound basis for future operations, good progress has been made, and the way is now clear for a more elaborate system of conservancy than has hitherto been possible.

Exploring of Forests. Good progress in—

4. The leading principles of future Forest conservancy in these Provinces were settled in consultation with Dr. Brandis, when that Officer visited these Provinces on special duty in February 1863. They are indicated in the correspondence which took place with him at the time, and have been embodied in a set of Rules which is about to be submitted, with a full report, for the approval and sanction of the Supreme Government. These principles may be summarized as follows:—

Main principles settled with Dr. Brandis.

1st.—The separation of Forests or jungle tracts in which Government possesses control, partial or entire, from lands declared to be private property.

2nd.—The division of such tracts into reserved Forest tracts and tracts under general Forest conservancy.

3rd.—The strict demarcation of reserved Forest tracts by the Forest Department.

4th.—The introduction into tracts, under general conservancy, of a system of departmental supervision by Forest officials acting under the orders of the ordinary Civil Authorities.

5th.—The application of the penal provisions of the Law respecting trespass, mischief or theft, to offences affecting the welfare of Forests either in the reserved tracts, or in tracts under general conservancy.

6th.—The application of the General Forest Conservancy Rules to the Chiefships locally termed Zemindarees.

7th.—The promulgation, from time to time, and the strict enforcement of Rules conducive to the perfect development, and to the profitable disposal of all timber grown in Forests under general control.

Rules of the Inspector General.

5. To carry out these principles a draft set of Rules has, as above observed, been framed by the Inspector General of Forests. A few modifications seem to be desirable. These are now under consideration. The Rules thus prepared will shortly be submitted for the approval and sanction of His Excellency the Viceroy and Governor General in Council.

Proposed Rules.

6. It may be however here mentioned briefly, that the proposed Rules provide chiefly for the appointment of certain officers necessary for the proper administration of Forests (Rules I, II, and VI); for the formation and demarcation of Government reserved tracts (Rules III, V, and VII); for precautionary measures being taken to prevent Forests being destroyed by fire (Rule IV); or by "Dhya" cultivation (Rule XV); for the systematic cutting of timber (Rule VIII); for the prevention of the indiscriminate destruction of timber outside Government Forests, and for empowering the Forest Officer to prevent the same (Rules X to XIV, and XVI to XXI.)

Rules to come into force January 1865; one year's warning.

7. If these Rules shall meet with the approval of His Excellency the Governor General in Council, it is intended to enforce them from the 1st January 1865; and as all the contractors for timber, and others, have now been warned officially for a whole year by the Conservator of Forests,* Mr. Temple is of opinion that no reasonable complaint can be urged of any additional restrictions which they may impose.

* Vide para. 48 of the Report.

Obedience of people in preserving young teak.

8. I am to advert prominently in this place to the exemplary obedience shewn by the people to the orders against cutting young Teak as noticed in para. 11 of Captain Pearson's Report. The results of these restrictive orders have been already highly beneficial. Millions of young trees are now springing up everywhere. Mr. Temple himself in marching through every district, has seen tens of thousands of young trees growing up; so that there is now a truly vast supply of these in hand, useful for every purpose of domestic use among the people. These young Forests will now be thinned, and the people will enjoy the benefit of their abstinence; for next year a very large quantity of small teak timber may be used by the people to their great convenience, and without injury to the Forest lands, but rather with benefit to the trees which will then remain.

"Dhya" cultivation.

9. As regards "Dhya" cultivation, to which advertence is made in para. 10 of Captain Pearson's Report, I am to solicit reference to the remarks contained in para. 382 of Mr. Temple's Administration Report for 1862-63. I am further to observe in this place that "Dhya" cultivation must be restricted, no doubt, in tracts where specially valuable trees exist. But on the other hand it must be permitted to some extent in most localities; as compared with barrenness indeed it is to be encouraged, as it alone prevents the jungle overpowering everything else; but as compared with *regular* cultivation it is to be discouraged, for it is altogether better to till the soil with plough and bullocks than to adopt the "Dhya" method. Mr. Temple is of opinion, therefore, that the object should be not so much to stop "Dhya" cultivation as to induce the people to substitute regular cultivation for it. Towards this object advances of cash ("Tuccavee," &c.), might perhaps be advantageously offered; but if the people will not adopt regular cultivation then it were better that they should have "Dhya" cultivation within proper limits, than that they should have no cultivation at all.

Proposes six Forest Divisions.

10. Commenting on the operations to be undertaken in future, Captain Pearson proposes in para. 16 of his Report, that the Forests of the Central Provinces be divided into four Divisions and one sub-division; each division being placed in charge of a separate Assistant, and the sub-division under a Sub-Assistant, or the Conservator himself. Mr. Temple concurs generally in those proposals, but he thinks that some of Captain Pearson's divisions, especially the C Division, consisting of the Nimar, Hoshungabad, and Baitool Districts, together with the Chindwarrah District, west of Deogurh, the Puchmarrees, and some extensive Forests in the locality of those hills, would be too heavy, and he would therefore divide it into two divisions. If this were done, then the sub-division might be absorbed into the main divisions. Mr. Temple is further of opinion that the tracts on and adjacent to the Godavery must be formed into a separate division. He therefore proposes that there should be six divisions as follows :—

Division 1, A—Beejoragogurh and the Jubbulpoor District.
" 2, B—Mundla, Seonee, and Lanjee in the north of Bhundara.
" 3, C—Baitool, Chindwarra and Nagpoor.
" 4, D—Hooshungabad and Nimar.
" 5, E—Chutteesghur and Mahanuddy, &c.
" 6, F—Chandah and the Upper Godavery.

11. It appears preferable that the Conservator should not have the immediate charge of any division, but that he might make his head-quarters at any one of the hill districts, such as Seonee, Chindwarra, or Baitool, all of which are close to the principal Forests.

Conservator not to have executive charge.

12. To carry on the work with efficiency an Assistant Conservator would be required for each of the six divisions. Separate proposals on this head have been made in this Office No. 3110 of this date.

Six Assistant Conservators required.

13. In each of the divisions important work has to be done. The chief points to which immediate attention is being directed are the following:—

Work of divisions.

14. In the A Division, the sleeper work has to be pushed on and finished. This has been ordered, and the Assistant in charge has also been instructed to try and select and form a reserved tract of Government Forests from the best portion of the Sâl Forests in Beejoragogurh.

A.—Sleeper work.

15. The Assistant in the B Division, will complete the felling and collecting of Teak and Sâl trees which, during the past season, have been marked and girdled by Lieutenant Freeborn. He will also thin the young Teak, and endeavour to form reserved tracts in the Mundlah District.

B.—Teak and Sâl, Mundlah.

16. In the C and D Divisions, the Boree Teak Forests and the Delakaree Sâl Forests will be put in proper order, and such other Forest reserves will be marked off.

C & D.—Baitool and Hoosheungabad.

17. With a view to the due conservancy of the Forests in this division, the Conservator has suggested, in para. 29, that the inhabitants of certain Forests might be induced to move into the more cultivated tracts, taking compensation for any loss they might be put to. The Settlement Commissioner has been addressed on the subject. The measure might be desirable, and as the habits of the people are very migratory, it might be managed; but it must be effected, of course, with the full consent of the people themselves.

18. Captain Pearson also represents the urgent necessity of some elephants in this division. He has also made a separate reference on the subject of a full complement of elephants being supplied to the Department. Mr. Temple, from his own knowledge, can testify to the reality of this want, and has submitted separate proposals on this head in this Office No. 3112 of this date.

19. With reference to Captain Pearson's remarks (paras. 39, 40, 41) on the subject of your No. 1153, dated 11th March last, relating to the leasing of the Zemindaree Forests generally, and the preparation of sleepers therein, Mr. Temple is inclined to concur with Captain Pearson in thinking that it would be judicious to test practically, in the first instance, whether the manufacture of sleepers in these Forests would be profitable, or the contrary. Before, therefore, taking any final steps towards leasing these Forests, it is proposed to undertake such an experiment as is suggested by Captain Pearson, and the Officiating Conservator has been requested to submit a detailed proposal on this head.

Lease of Zemindar's Forests.

20. Lieutenant Noverre, Assistant Conservator, has recently proceeded to the Eastern Division, and would superintend this experiment; he will also examine several large Forests in this division, and take steps to form reserved tracts.

Lieutenant Noverre to form reserves, and experiment in sleepers.

21. In connection with this proposed experiment in sleepers, I am to advert to this Office No. 1232 of 15th December last, to the address of the Secretary to the Government of Bombay, copy of which was forwarded to you with this Office No. 1233, dated 15th idem, regarding the prospect of the future supply of sleepers and fencing posts for the Great Indian Peninsula Railway. It is hoped that the measures which have since been, and are now being, adopted for the proper conservancy of the Forests, may result in the demand for the same being sufficiently met.

22. In the F Division, comprising Chandah and the Upper Godavery District, some large and profitable Forests exist. Captain Pearson, in his 37th para., alludes to the necessity for their examination and conservancy; but no Assistant is at present available for the duty. Captain Pearson is of opinion that the Forests in the division would be remunerative.

F division, Chandah, Upper Godavery.

23. In connection with this point, I am to annex a copy of a letter from the Deputy Commissioner of the Upper Godavery District, No. 877, dated 27th October last, reporting on the state of the Forests of the F Division. Mr. Temple hopes that the results of the measures

which it has been possible to take through the district authorities up to that date, may be deemed satisfactory.

Financial results.

24. The financial results of the year under report are given below :—

	Rs.	A.	P.
Receipts and Estimates	1,56,754	5	4
Disbursements	70,532	4	1
Balance Estimates	86,222	1	3

25. In the Budget for 1864-65, the estimate for receipts and disbursements need not be noticed here, as the disbursement estimates have been considerably modified in this Office No. 3112 C of this date.

Captain Pearson's zeal and ability.

26. Such, in brief, is the present position of Forest conservancy in these Provinces. In submitting this report Mr. Temple desires to express his entire satisfaction with the manner in which the duties of the Department have been conducted by Captain Pearson, the Conservator. That officer has exhibited marked zeal and ability in the interest of his Department, and on the other hand has uniformly shewn consideration to the people. It is to be regretted that the fatigue and exposure to which he has been subjected should have disabled him, temporarily, from continuing in active employ, and compelled him to proceed to Europe

Lieutenant Freeborn.

27. Mr. Temple has also pleasure in bringing to the favorable notice of His Excellency the Viceroy and Governor General in Council, the good service performed by Lieutenant Freeborn. This officer has given promise of becoming a very efficient Forest Officer. It is to be regretted that his services cannot be retained in the Department.

ANNUAL REPORT FOR 1863-64.

By CAPTAIN G. F. PEARSON, *Conservator of Forests, Central Provinces.*

DATED 28TH MAY 1864.

I will first enter into a short account of the progress that has been made in Forest work during the year 1863-64, and secondly, I will direct attention to those points which I think demand most urgent attention during the ensuing year. I must plead ill health as the cause of a very meagre Report. An account of revenue is added.

Tour of inspection.

2. First, as regards the employment of the Forest Officers for the past year, commencing from May: I left Nagpoor early in May, and made a careful inspection of the Baitool Forests with a view to the selection of the Forest reserves. Thence in June I inspected the Forests of the Taptee Valley as far as the Borhanpoor frontier, and returning by Hurdah, I examined the Forests north-west of that place about Jogee, and so along the Nerbudda to Hooshungabad, which I reached in the end of June. From there I went to Saugor to visit the Gurrakotta Rumnah, and inspected the nurseries of young teak, and so on through Dumoh, Jubbulpoor, and Seonee, examining the work and accounts of the Darogahs, back to Nagpoor, which I reached on the 14th of August. On the 1st of October I again left for Seonee to arrange the details of the Contractors' work, and settle the terms of lease for the Doongratal Forest; and returning again to Nagpore, I finally left for Berar on the 28th October.

Exploring in Berar.

From that date to the 14th February 1864, I was entirely taken up in exploring the Forests in Berar along the Pem Gunga and Taptee. This report has been sent to Government through the Resident at Hyderabad.

Demarcating reserves in Baitool.

3. From Berar I returned to Baitool, and finally settled the boundaries of the proposed reserved Forests, sending in applications for the land to the Settlement Officer: a detailed account of these is given in Appendix C. Thence I went to the Forests of the Towah Valley in Chindwarrah, to examine them with a view to forming reserved tracts and to the Boree Teak Forest and Delakaree Sâl Forests in the Deinwah Valley (*vide* Appendix D), where I was taken ill on the 28th of March. Since then I have been able to do no work. I made an attempt about a fortnight after to get from Mohtoor to Baitool, but I felt the sun so severely, that I was obliged to return to Mohtoor.

Taken ill in March.

Lieutenant Douglas' sleeper works.

4. Lieutenant Douglas has been employed during the whole year in preparing sleepers on the Beejoragogurh Forests, except for about 2½ months, from the end of July to October, during the heavy rain, when he remained in Jubbulpoor: his Report is appended marked B. The progress here is not satisfactory; but it is no fault of Lieutenant Douglas as far as his own exertions are concerned. He has had great difficulties to contend with in the unsoundness of really all the large trees (which was so unexpected) in the proximity of the Railway works, which, in so thinly populated a country, has swamped the labor market, and also unfortunately in having a Darogah who has failed to carry out the works well, which was certainly not from want of ability. The proximity of the Railway, and the large sums realized by petty contractors no doubt do much to turn the heads of some of the Native subordinates. A quantity of timber also was burnt, it is supposed by incendiaries. I append (marked F) an extract about this sleeper work from the report of the Deputy Consulting Engineer for Railways, North Western Provinces, which, as I was unable to visit the works myself, I am unable to corroborate from personal inspection; but it coincides with my own opinion on the matter from the reports of my Assistant. Up to the 30th April 1864, Rs. 24,555-3-1 had been expended (excluding cost of supervision); 16,472 sleepers stacked at the depôts, 485 long lengths, and 2,560 sleeper lengths collected at the depôts.

Lieutenant Forsyth commended.

5. It was to me a cause of great regret that, after an attack of small-pox last May in the jungles north of Belaspore, my excellent Assistant, Lieutenant Forsyth, resigned the Forest Department. Lieutenant Freeborn, of the Royal Regiment, was appointed to act in his room. His Report is appended, marked A.

Lieutenant Freeborn commended.

I beg especially to call attention to the indefatigable zeal and hard work displayed by this officer, as I know well what it is to be all day-walking in long grass and bamboos, over such hills as those in Mundla, looking for trees. I much regret that, owing to not having passed in Hindoostanee, this officer could not remain in the Department.

Baitool.

6. In Baitool, the Darogah, Mahomed Padsha, has done excellent work. In these Forests 14,083 logs of teak have been sold during the past year for Rs. 24,307-8 by the Darogah, which were entirely old logs collected from the jungles; 4,000 teak stumps fit for sleepers have been felled, and are now being collected; 56 large teak logs, containing 1,245 cubic feet, or averaging 22¼ cubic feet each, have been cut and sold for one Rupee per cubic foot at the depôt in the Forest; and about 3,000 experimental sleepers, of different kinds of wood, for the Great Indian Peninsula Railway, have been cut, and are now being sawn up.

Four maunds of teak seed have been sent to the Deputy Commissioner of Oomraotee; various tree seeds have also been sent to the Deputy Commissioner of Nursingpoor, and I have distributed a quantity of sandal wood seeds to different Malguzars to sow in their gardens. A large quantity of timber out of the 14,083 logs above referred to, has been sent to Mhow, to the Executive Engineer.

Mundla Forests.

7. The Darogah has been employed with Lieutenant Freeborn during the whole season.

Hooshungabad and Seonee.

8. In Hooshungabad and Seonee the Darogahs have had ample work in watching the sleeper contractors and regulating their proceedings.

Sleeper contracts.

9. I must here beg to state that nothing can be more utterly bad than the present system of supplying sleepers to the Railway, and as all the licenses will expire on 31st December, I earnestly hope that, after that date, the present system may on no account be permitted to continue. It is not the fault of gentlemen like Mr. Hood and Mr. Aiton, that this is the case, a bit more than it is the fault of Natives like Kullianjee, Womentrow, and Ramasawmy; but the result is the same with all of them. The plan they pursue is to sub-let the work to petty timber contractors, and these men, who are generally old timber merchants and know the jungles well, practise every kind of villany. My plan has been to portion out tracts of Forests to the several great contractors, so as to hold each responsible for what went on within its limits, but I have been defeated here; as one petty contractor takes the wood which he has cut for one great contractor and sells it to another; and so all sorts of quarrels arise, and hundreds of trees are cut down only to be left to rot or burn, while it is impossible to find out who is the culprit. After 1st January next the plan pursued must be in strict conformity with the new Forest Rules.

"Dhya" cultivation.

10. I think that on the whole "Dhya" cultivation has diminished very much since the Forest Rules came into operation. In Baitool, I especially noticed that in the valley of the Morun River, in Sowlegurh, the regular cultivation was full four-fold what it was three years ago, while many of the jungle villages which were formerly supported entirely by "Dhya" cultivation are deserted, the inhabitants having come to live in the larger villages in the valley, where regular cultivation is practised. Doubtless the high price of grain, as well as some little trouble which the Forest Laws occasion them in avoiding the teak trees, has induced this. It should be our object, as far as may be, to render "Dhya" as unprofitable an occupation as possible, and then without any oppression it will, I doubt not, gradually cease.

Young teak trees.

11. I cannot help remarking on the wonderful obedience which the people have everywhere rendered to the orders of Government regarding the teak. This tree is springing up in millions everywhere, and in many places is thriving amazingly. It will soon require to be thinned. Were this the only good result of Forest management in these Provinces the money expended would have been well laid out.

Forests within limits where proprietory right has been granted to villages.

12. I think it would be a just and graceful recognition of this obedience on the part of the people if the Government would at once release, from the restriction of the Forest Laws, all timber within the Forests given to villages in proprietary right. Government might, however, in doing so, reserve to itself the right of withdrawing this privilege in case it was wantonly abused. But teak poles are much wanted in the country, and I think this is the best way of meeting the requirements of, as well as doing justice to, the people.

Surveyor fell sick.

13. I regret that no progress has been made in mapping the reserved tracts during the past season; but the Surveyor, after reporting sick for four months, resigned the service, and his place was not supplied.

14. I will now proceed briefly to state what must be the main work for 1864-65:—

Forest work for 1864-65.

15. There will be four Assistants. I will endeavour to point out separately the district and work of each; but the officer who acts for me will possibly find it necessary to make modifications on account of circumstances which I cannot foresee.

Distribution of work

16. For the ensuing year I think the work should be distributed as follows :—

1st.—One Assistant should have charge of Beejoragogurh and the Jubbulpoor District north of the Nerbudda, with the sleeper work. This latter work will not permit his moving far away : this should be called the A Division, or Northern Forests.

2nd.—A second Assistant should have charge of Mundla, Jubbulpoor, south of the Nerbudda, the northern portion of Seonee, the Goaree Ghât Custom House, Nursingpoor, Dumoh and Saugor, with the Garakotta Rumnah ; this should be called the B Division, or North-Eastern Forests.

3rd and *4th.*—A third Assistant should have charge of Nimar, Hooshungabad, Baitool, and Chindwarrah, west of Deogurh, including the Puchmarries, the Boree Teak Forest, and Delakaree Sâl Forests, and the whole of the Towah and Deinwah Jungles : this should be called the C Division, or Western Forests.

5th and *6th.*—A fourth Assistant should have charge of Nagpoor, Chanda, and Raipoor, to be called the D Division, or Southern and Eastern Forests.

This arrangement leaves out the whole of the Forests from Deogurh in the west, to the Lanjee Hills in the east—a most important block, and forming a separate charge. If the promotion of a Sub-Assistant Conservator is sanctioned, he must take charge of this, which should be called the E or East Centre Division ; but if this arrangement is not made, the Conservator himself must undertake general charge of it, as it would be unwise to extend the charge of the Baitool Assistant, who will have enough to do to learn up the tract given to him as above and look after the work. Lieutenant Doveton has taken charge of the Western Forests, and Lieutenant Noverre of the South-Eastern Forests.

17. These divisions differ from those shewn in the last Budget Statement for 1864-65, in that I then included both the A and B Divisions in one, which, under the present arrangement of Assistants, it will be better to separate.

A. Division or Northern Forests.

18. As regards the work to be done in the A Division and Beejoragogurh Forests, this consists mainly in forcing on the sleeper-work and finishing it. I think the present Darogah (Matadeen) should be discharged. He has failed in getting work done rapidly, and I strongly suspect that he is a rogue. I think in his place it would be far better to employ two or three Europeans, if they can be got from the Railway ; in any case it will be better to push on the work rapidly, even if we have to do it at an enhanced cost. At the present rate too much of the cost of the sleepers goes to superintendence, which last month, including the Assistant's salary, nearly equalled the cost of the sleepers prepared. The officer who acts for me should take an early opportunity of visiting the work, which from illness I was hindered from doing, and then in connection with the Chief Engineer of the Railway and Consulting Engineer, the price to be demanded from the Railway for sleepers should be fixed.

As a rough guess, I should think that the price demanded for sleepers in the Forest including every charge—*viz.*, Royalty, share of Conservator's salary, superintendence, and labor—should be somewhat as under ; but without seeing the sleepers it is impossible for me to form a just opinion :—

ESTIMATE OF RATES FOR SLEEPERS.

1st Class	sleepers	10 × 12″ × 6″	Rupees	4
2nd Class	„	10 × 10″ × 5″	„	3
3rd Class	„	All inferior in size or quality	„	2

In this estimate the cost of labour will be about one Rupee ; superintendence one Rupee, including share of Conservator's salary ; Royalty 1 Rupee : total 3 Rs ; which is the price I have put for a second class sleeper ; the profit in the 1st class cancelling the loss in the 3rd class. In addition to the above, the cost of carriage to the Railway will probably be about one Rupee per sleeper for 1st class sleepers containing five cubic feet ; and 12 annas for 2nd and 3rd class sleepers containing between three and four cubic feet, which will raise the total cost of the sleepers to about one Rupee per cubic foot delivered on the Railway. But this should be settled as soon as possible, and Secretary to the Chief Commissioner has been addressed on the subject, *vide* my letter No. 47 of 5th February 1864.

19. The officer in charge of the Beejoragogurh work must also select and form a reserved tract or Government Forest from the best portion of the Sâl Forests there. The Assistant Political Agent at Nagode has been addressed on this subject by me, and a map of the proposed tract has been forwarded to him.

Reserved Sâl Forest.

20. The work for the Assistant in Mundla and the North-Eastern Forests will be as follows :—

E. Division or North-Eastern Forests.

To complete the felling and collecting of the teak and sâl trees which have been marked and girdled during the present season by Lieutenant Freeborn, in order to comply with the requisition of the Public Works Department for 7,000 logs.

21. The cost of the timber collected on these accounts, for the Public Works Department, must be shewn to the credit of the Forest Department, when the accounts for 1863-64 are made out.

22. The teak in Jugmundel, which has been collected, and which is too small for the Public Works Department requirements, must be sold. Care should be taken that the purchasers do not smuggle other wood down the river with it.

23. If the road from Toplah to Mundla is not made during the ensuing year, some money should be spent by the Forest Department to make it sufficiently practicable to get out the timber from Toplah. Of the 1,000 sâl trees in the Toplah Forests which were cut two years ago, it is understood that some are of too small scantling and otherwise unsuited to the Public Works Department. These should be cut up into sleepers for the Railway. Some further attempts must be made to get the half-burnt logs collected which are lying about all over the Forest. Those which are too much burnt for timber may perhaps be converted with profit into charcoal ; at all events an experiment might be made of this sort as is being done in Baitool.

Road from Toplah to Mundla.

24. There are a quantity of short stunted and pollarded teak trees in the north of the Seonee District, extending from Gunsore near Kidderpoor, west, to the borders of Nursingpoor. I think that many of these might be converted into sleepers for the Railway, or might even do for short purposes, such as door and window frames and rough furniture, if some arrangement were made to cut them.

25. Some attention should be paid during the coming year to the thinning of the young teak, in places where it has attained a sufficient size, *i. e.*, where the poles average six to nine inches in diameter. In distant Forests, where teak poles of this size will not sell, the villagers may often be induced to carry out the thinning under supervision of a Forest subordinate, if the thinnings are given them for their huts. This operation however requires great caution, and care must be taken where there are five or six shoots from one stem not to denude the Forest by leaving only one pole standing and cutting down all the rest ; but two of the *least promising* out of five or six shoots, and one of the least promising out of three shoots may be taken during one season, and the operation may be repeated after three or four years. Thus by careful watching, the best shoots will in the end be preserved to form timber trees.

Importance of thinning teak.

26. Gurrakotta must be visited once at least during the year ; the Forest should be examined and any old trees cut down, they will gladly be taken by the Commissariat Department. The thinning operations there should be proceeded with, and the young teak plants in the nurseries planted out. The young trees, which were planted out last year, should be looked to, and if necessary protected by fencing. More nurseries should be formed here.

27. I would observe that in thinning, care should be taken as a general rule not to prune the branches, as I observe has been done in some places ; a few of the lower branches may, however, sometimes be lopped off with advantage. Some attempt should be made to form reserved tracts in Mundla, if time can be found for it. The Forest may at all events be roughly demarcated, as has been recommended in Baitool (*vide* Appendix C) ; and as Lieutenant Freeborn has had great opportunities of examining these Forests in his search for timber during the past season, his advice may be requested as to the hills which it will be best to select for this purpose. But the great point in this division during the next season is, to collect the timber which has been girdled or felled for the Public Works Department during the past season, so that it may not be burned in the fires next year ; and it must be remembered, since payments are not now made between Departments, that the price of this timber is fairly assessed and credit taken for it in the Forest Departmental Accounts, next October.

Reserved tracts in Mundla.

28. I much regret the sudden death of Sergeant Eastwood, the Overseer of Goaree Ghât from either apoplexy or sun-stroke, at the end of April. He was an excellent servant of Government, as well as a most respectable man, and he has done good work in the Forest Department. As the receipts of the Custom House are much fallen off, owing to the fact that most of the felled wood has been cleared out of the Mundla Forests, I have taken the opportunity to reduce the expense of the establishment at Goaree Ghât by removing the Jemadar to Beejoragogurh, and appointing one native Darogah on Rs. 50 a month, thereby saving Rs. 65 a month. I think this will be found ample for the present work of the Custom House.

Overseer Sergeant Eastwood.

29. As regards the Western Forests, of which Baitool is the centre, the works during the ensuing year should be—

C. Division, or Western Forests.

1st.—To mark off the provisional reserved tracts as directed in Appendix C.

2nd.—To put the Boree Teak Forest in proper order; to cut and clear broad paths through it to prevent the spread of fire; to collect all the dead and half-burnt logs lying in the Forest; to mark and girdle trees which have been partially injured by fire, or which are beginning to decay; to count all 2nd and 3rd class trees, and to make a map of the Forest.

These two works demand the urgent attention both of the Conservator and Assistant. If arrangements can be made with the Settlement Officer to buy up the proprietary right of the villages in this forest—*viz.*, Boree, Errapilla, Lama, Peepurree, Bohye—an attempt should be made by giving the people compensation to get them to go and live elsewhere; for as long as "Dhya" cultivation is permitted here, no real conservancy can be attempted, as no part of the Forest is free from teak, while there is no room for any regular cultivation. As long as then "Dhya" is carried on, the teak must necessarily suffer more or less. The small elephant should be sent to draw timber in this Forest. The harness is with Lieutenant Douglas at Jubbulpoor. The following works, which are most important, although they are not equally so with the two first, will require attention in this division :—

1*st.*—The commencement of maps of the reserved tracts.

2*nd.*—The thorough examination of the hills in the valley of the Upper Towah, both north and south of the river, about the Mattardeo Hill and Tekadana, as well as near Gondee, Koppa, and east of the Kilindeo Hill, which I partially examined this year, with a view to form reserved tracts.

3*rd.*—To continue the preparation of the experimental sleepers for the Great Indian Peninsula Railway, of different sorts of wood, I have ordered one hundred of each sort, *viz.*, *Mowah* (BASSIA LATIFOLIA), *Beeja* (PTEROCARPUS MARSUPIUM), *Hurdoo* (NAUCLEA CORDIFOLIA), *Kuddam* (NAUCLEA ORIENTALIS), *Dowra* (CONOCARPUS LATIFOLIA), *Saj* (PENTAPTERA TOMENTOSA), *Kowah* (PENTAPTERA ARJUNA), *Mokah* (SCHREBERA SWIETENIOIDES), *Unjun* (HARDWICKIA BINATA), *Rohnee* (SOYMIDA FEBRIFUGA), only to be considered as specimens; as on inspection of the timber felled for them it was not sufficiently good for an experiment. The logs had better, however, be all cut up into sleepers, and can be sold to the Railway Company or to the contractors; though I would not advise that more than one hundred specially selected sleepers of each sort should be guaranteed in any way as fit to be used as an experiment.

4*th.*—For purposes of revenue old teak trees as well as pollarded trees and teak stumps, both in the Baitool and Hooshungabad Forests, as well as in the Forests around Asseer and skirting up to Boree, should continue to be felled and collected as was done last year. Their sale is a great help to revenue. I have ordered these to be converted either into Railway sleepers, logs, or planks, as may suit best.

5*th.*—I have ordered the cutting of some teak trees (the number to depend on an examination of the Forest by the Darogah) near the Mattardeo Hill, and about Gondee, Koppa, in the Upper Towah Valley. This should be continued.

6*th.*—I have ordered 100 to 150 good large teak logs to be felled and collected in the Baitool Forests during the next season, if they can be found.

7*th.*—The collection of lawaris timber lying about the jungles must be continued.

N. B.—From the last four sources, including the logs which may be collected in the Boree Forests, the wants of the Executive Engineers at Mhow, Neemuch, and Nusseerabad, as well as the Railway contractors for teak, must be supplied. No pressure from any of these sources will justify the felling of any other teak trees during the next year, which must be steadily withstood.

8*th.*—There are about 4,000 saj sleeper logs lying in the Jullar Pergunnah of Baitool, which were cut by Mr. Degacher, and have been confiscated. I have offered these to Womentrow: if he does not take them, they should be made into sleepers by the Forest Department. They will repay the labour expended on them.

9th.—I have ordered the Baitool Darogah to make an experiment as to the practicability of sawing up the large kowah trees along the banks of the rivers into sleepers, by buiding up a platform of bamboos round them, and then, after lopping off the top branches, sawing the trunk down vertically into sleeper lengths; as these large trees if felled are so heavy that it is impossible to move them.

10th.—The thinning of the young teak must in some measure be attended to near the main roads Teak poles will find a ready sale from the contractors for the Railway, as well as the people generally in Hooshungabad.

11th.—With reference to No. 4 suggestion, the teak cut in Hooshungabad (in Kaleebheet, Rajaboraree, &c.,) should be carted down to Hurda, Seonee, Timoornee, &c., and sold there by auction. The increased price will more than repay the carriage, as the people of the valley hate going into the jungle for wood.

12th.—Any large tinnus trees *(Dalbergia Oojeinensis)* should be noted, and felled for the Arsenal.

13th.—The Forest wants of Nimar must be considered. Some establishment will be absolutely necessary for the Lower Taptee Valley between Kaleebheet, and Borhanpoor, as also for the Burwanee Teak Forests.

Timber sales in Forest.

30. The experiment of timber sales in the Forest might be tried again next year, provided a long notice be given at Mhow, Indore, Neemuch, &c., especially to the Executive Engineers and agents of the Public Works Department, as the competition for wood there last season has been certainly much greater than it was before. But if so, the time of the subordinates must not be wasted over these auctions as it was before, and the wood must be put up at a good upset price, and if not bid for at once must be bought in, and sold afterwards when the price goes up. The lots should be large (not less than one hundred logs each).

31. I think that perhaps some credit should be taken in the accounts for wood which has been collected; at all events some allowance must be made in reviewing the Budget on this account, as the sale of the timber must in a large measure be regulated by the demand at the time, and not by pressing on sales so as to shew a good Cash account on the Credit side. The Forest Department should work for the general good of the State and the people, as well as for considerations of revenue. It is often positive harm to throw a quantity of wood suddenly into the market, which would only get into the hands of Native speculators.

Elephants required.

32. Two or three elephants are urgently required for this division, both for dragging timber and for the use of the Assistant and Darogah; for in these jungles the tigers are extremely dangerous, and the Forest people will often not go properly into the jungles without them, and the work therefore is not done

33. At present the Railway contractors felling sleepers and timber in these Forests are as follows:—

1. Messrs. Hood, Winton, and Mills, No. 16 Contract,
2. Vomentrow and Wasodeva,
3. Casseeram and Mr. Sargon,
4. Hadjee Hamed,

and their sub-contractors. The two last, however, have now no permission to cut trees.

New Forest Rules, Jan. 1865.

34. Care must be taken that from 1st January 1865, the new Forest Rules are rigidly enforced with regard both to felling timber, and also as regards duty. I will advert to these points more fully hereafter.

35. I find that the allowance of 3 per cent. on all sales sanctioned by Colonel Erskine when Commissioner of Jubbulpoor, is of much advantage in inducing the Darogahs to collect timber in the Forests.

D Division, Southern and Eastern Forests.

36. The remaining charge to be noticed is that of the Southern and Eastern Forests, *viz.*, those in Nagpoor, Chanda, and Raipoor. In Nagpoor the only point requiring notice is the necessity of making some provision for the care of the young teak, which is scattered over the eastern and north-eastern portions of the district. There is some of fair quality on the range of hills running east of the Wurdah River, where I examined it last season. I have not however had time to inspect the whole tract properly. Some information will be found in extract of a letter from Mr. Ross, the Settlement Officer, *vide* Appendix E.

37. In Chanda, the Dalpa and Mohrlee Forests require examination, and the possibility of working them profitably for Railway sleepers should be ascertained. I look to these Forests to pay for the Forest Establishment in the southern and eastern districts for the present.

Aheree Forest to be inspected.

38. It is absolutely necessary that the Aheree Teak Forests should, if possible, be properly examined next year, and an estimate of their contents framed, by measuring in several places at random areas of one square furlong each, in which all the trees should be counted and classified, those of—

6 feet girth and upwards as	1st	class	trees.		
4½ „ „ to 6 feet	„	2nd	„	„	
1½ „ „ to 4½ feet	„	3rd	„	„	
All smaller	„	4th	„	„	

This should be checked by measuring along any track in the Forest with a rope or perambulator, and counting the trees of each sort within any distance convenient for computation on each side of the tract. The distance in width should be some convenient fraction of a mile, as 55 yards, which in April or May can generally be seen on each side of the road, equalling half a furlong in total width, to be counted. In this way an approximate average of the value of the Forest may be obtained. For further particulars of this kind of survey, see Doctor Brandis' Report on the Attaran Forests, page 41, and Appendix.

39. The preparation of sleepers from the Aheree and Raipoor Forests as contemplated in letter No. 1153 of 11th March 1864, from the Secretary to Government of India, Public Works Department, is another point to be attended to; but I would not recommend that more than the girdling of trees be attempted next year.

40. I must beg respectfully to offer a few remarks on this letter. It has perhaps escaped the observation of Government that the Sâl Forests in Raipoor are more than 200 miles from Nagpoor, while those in Mundla are about 110 miles from Jubbulpoor, but over a much more difficult road. As a rough calculation four Sâl sleepers of 10" × 10" × 5" are an outside load for a two-bullock cart, and even taking cart-hire at only one Rupee a day, the carriage of four sleepers from the Forests may be put at Rs. 20 (or Rs. 5 per sleeper) to Nagpoor, and Rs. 12 (or Rs. 3 per sleeper) to Jubbulpoor, including one day's detention at the Nerbudda at Mundla. In point of fact, however, this will be considerably exceeded in the journey to Jubbulpoor on account of the Ghâts. At the above rates for carriage, it seems to me that, even if there were no risk in preparing sleepers, they could not be delivered at Nagpoor and Jubbulpoor at less than Rs. 7 and 5 per sleeper, *cost price*, respectively, including cost of superintendence, but without allowing anything for Royalty or profit. But the experiment should be made, and when the actual cost has been ascertained, the Railway might be asked if they could afford to give that price.

Leases of Zemindaree Forests.

41. I, would therefore, strongly recommend, before any lease is entered into with any Zemindar for obtaining possession of these Forests, that the exact cost of preparing and carting one thousand sleepers from an average place in the Raipoor and Mundla Forest to Nagpoor and Jubbulpoor, respectively, be ascertained. If, as has been stated, sleepers of Burmese teak can be imported to Bombay for Rs. 5 or 6 each (as creosoted pine sleepers from Europe certainly can be), after the Railway is completed to Nagpoor, the Sâl sleepers may be unable to *compete* with the *teak* in *price*, as they certainly cannot in *quality*, and they may remain as a drug in the market, and the Railway may have nothing to say to them. They would then be a dead loss to Government. There is also the contingency of a good iron permanent way being discovered.

42. To me it would seem that the Aheree Teak Forest (if some arrangement could be made with the lessee) offers a far better chance, provided also on examination the teak there proves as abundant as is supposed. These Aheree Teak Forests are certainly not more distant from the Railway than the Sâl Forests; while teak is only two-thirds of the weight of sâl, and is more durable. I would therefore advocate that a sufficiently large experiment in sleepers be made in the Aheree Forests, in the Raipoor Forests, and in Mundla, care being taken to ascertain the exact cost of *each part of the operation*, that some reliable data may be obtained to go on, before any leases are contracted.

Saws.

43. It would be well to write to Bombay or Calcutta for a couple of hundred light saws (both cross cut and long cut), and to get them up as soon as the rains are over. But it is absolutely necessary that a man who thoroughly understands the setting of saws and laying out timber for cutting be employed in each place, although where only a small number (as one or two thousand sleepers) are made, it might not be fair in estimating their cost, to charge all of his pay to it. This, as well as the charge for superintendence generally, must be fixed at a percentage rate, if it be desired to find out the true cost of a thousand sleepers.

Leases, objections to.

44. It can, however, do no harm for a Forest Officer, in connection with the District Officers during the coming season, to endeavour to ascertain the terms on which some of the best of these Forests may be had on lease But I cannot help feeling grave doubts if the Zemindars will ever give up (except for the most extravagant compensation) their rights to "Dhya" cultivation and Forest produce, as indeed their whole revenue is for the most part derived from these sources. Any lease unwillingly extracted

from them would, in the end, prove worse than useless, both because without their countenance it would be impossible to procure labour in the Forests, and also because without their real support willingly given in the matter, Forest conservancy could not be carried on for a day in such distant and uncivilized localities, where, till quite the other day, the face even of a European was unknown. It is also unfortunate that while ten or twelve years ago they seem to have considered their Forests of no value, readily giving up the most valuable ones for a few hundred Rupees a year (quite out of all proportion to their value), they now, on the other hand, have fallen into the opposite extreme, and from fabulous stories of the immense profits realized from contractors, as well as from the solicitude Government have evinced in Forest matters, they now generally entertain the most extravagant notions of what they ought to get for their wood, and demand more than they could ever hope to realize from working the Forest themselves. I therefore strongly recommend that all steps in the matter of leases be taken with great caution, and by the Forest Officer and District Officer working together.

45. There will then remain under the immediate charge of the Sub-Assistant, or of the Conservator, all the Forests east of Deogurh in Chindwarra, as also those in the south of Seonee and Bhundara. Little executive work can be done here, except the supervision of contractors and some attention perhaps to thinning the young teak, unless a Sub-Assistant Conservator be appointed; in which case he should be placed in charge of this division, which may be called the E or East Centre Division, and regular Forest work may be commenced here also.

Points demanding the attention of the Conservator.

46. The only other points to which I desire to draw the attention of the officer who may act as Conservator during my absence, are—

1st. The necessity of rigidly enforcing the Rules as to the felling of timber and sleepers for the Railways, as well as timber for the Public Works Department, by contractors of all descriptions and under all circumstances, from 1st January next.

2nd. The securing of lands for the reserved tracts in other districts, as has been done in Baitool.

To carry out the first of the above points, it will be necessary to enforce rigidly X and XIV of the new Forest Rules; and a Forest Officer must go round with an agent of the contractors and mark with red paint every tree to be felled. To this end the Contractor should enter in his application the number of trees he requires, and these should be marked and numbered consecutively before a single one is cut. The initial of the contractor's name might be added to the consecutive number, and a register in Vernacular made by the Darogah, shewing the number of trees and the consecutive numbers within each village limit. A regular agreement should then be given by the Contractor taking over the trees agreeing to terms of payment, and if necessary backed by security for fulfilment of the terms; and a term for the final removal of all wood must be fixed in all cases, after which all claim to the timber will cease. Penalty clauses should be also entered in the agreement to pay a fine in case any tree not marked as above is felled, or any tree felled is not removed. Confiscation of the timber is no punishment in such cases. Payment should be made monthly.

Short supply of Railway timber.

47. Ample time has now been given for the purpose of obtaining all the sleepers that may be required for the first laying of the Railway lines, and the shortness of the supply of timber which remains renders the most stringent measures on this head necessary. I desire to speak as strongly as possible on this point.

Petty Contractors troublesome.

48. I may here say that the most troublesome people to deal with are the petty contractors for the Public Works Department, who invariably think that because they are getting wood for Government they may commit any iniquity they please. I do not think that after the license that has been given to the contractors, the Railway authorities can complain of the enforcement of the rules for the preservation of the Forests; and as all the contractors have been warned by me officially for a whole year that the Rules will be enforced after 1st January 1865, and the enhanced rate of duty charged, the contractors can have no complaint on either head.

Demarcation of reserves.

49. As regards the second point, I can only recommend that the plan I have followed in Baitool be continued in Chindwarra, Seonee, Mundla, and the other districts; and as soon as Lieutenant Doveton reports that he has finished the demarcation of the reserved tracts in Baitool, the definition of them and the names of the village they contain must be published in the Gazette. This should on no account be neglected.

Conclusion.

50. In conclusion, although I regret that there is less show of work than I could wish in the Forests during the past year, yet it must be remembered that I was employed in Berar from the end of October to the middle of February; that Lieutenant Douglas has been entirely employed in Beejoragogurh on the

sleepers. Lieutenant Freeborn for some time was quite new to his work, and the whole of the operations were carried on by the Darogahs. Lieutenant Douglas has worked hard and with perseverance under considerable difficulties, not the least of which is the demoralizing effect which the high rates of pay and profit on the Railway works close by have on the Government servants and petty contractors, to say nothing of the difficulty of getting labour in so thinly a populated country with the Railway works close by. The Darogah, who is an old Public Works servant, I can quite believe, wished to do badly that he might be discharged, because he thought he could do better by taking a petty contract on the Railway; but as the timber was felled by him there were reasons against doing so hastily.

Lieutenant Freeborn.

51. To Lieutenant Freeborn, I think, special credit is due, as, notwithstanding he must have laboured under difficulties owing to an imperfect knowledge of the language, yet he has worked with great zeal, perseverance, and, as far as I can judge without personal inspection, in an eminently useful manner, in carrying out the necessary measures for meeting the requisition of the Public Works Department for 7,000 logs of Teak. I well know myself what the Mundla Hills are before the grass is burnt, and from the ground he has gone over I can form a fair idea of the amount of exertion he must have gone through to accomplish what he has done. I much regret the loss of his services to the Department, and if he chooses to pass an examination in Hindoostanee, I feel sure he will do good service in any position Government may see fit to make use of him.

Mohamed Padsha.

52. Mahomed Padsha, the Baitool Darogah, has fully kept up his former high character, and my own office establishment, who have been with me in the Forests throughout the season, have given me every satisfaction.

Head-quarters.

53. I think that the question of an Head-quarter's office for the Forest Department should be settled as soon as possible. At present there is no place even to keep the records, or convenience for commencing the formation of an herbarium. The office should be under charge of an Assistant when the Conservator himself is not present; and as he should be available for Forest work, as well as charge of the office, as far as my opinion is of any value, I think although Nagpoor is the head-quarters of the Government, it is inconveniently situated for this purpose. Jubbulpoor or Seonee are far better situated as far as the Forest work is concerned; and when the road from Jubbulpoor to Nagpoor is completed, a few hours on the mail cart would always bring the Conservator to Nagpoor if his presence were required there.

Reserved Forest tracts.

54. I have entered fully into the subject of the formation of Government reserved Forests in Appendix C regarding Baitool. As the same remarks apply equally to all the other districts, it is not necessary for me to recapitulate them here.

Mapping of the reserved Forest tracts.

55. The mapping of the reserved Forests will demand the especial attention of the Conservator next season. Arrangements must be made to commence and carry it out. The Assistant Conservators will, I expect, have enough work on their hands, and a Surveyor of some sort will be required. I would specially hope that the maps should be prepared on a large scale (at least four inches to the mile), as then they can be made to form a regular record of the progress of the Forests.

Forest revenue for 1863-64.

56. A correct statement of the Forests receipts and disbursements for the past year, cannot be made out until the accounts of General Revenue (in the office of the Deputy Auditor and Accountant General at Nagpoor) are carefully scrutinized for the past year; as, with every care among a multiplicity of work, the District Officers omit to send a Memorandum of many items of Forest revenue to my office, which can only be discovered afterwards on examination.

57. The actual accounts will be sent in as ordered by the Government of India (Circular No. 49, dated 18th September 1863), in October next, with the Budget for next year, and should be accompanied by a Memorandum on the financial condition of the Department.

58. The following two statements will shew the state of the Forest Accounts. The first is a comparison of the accounts with the Budget-Estimate, the second is a detailed Dr. and Cr. statement of the Department as nearly as it can be at present made out.

59. In 1862-63 the actual receipts in money from Forest Revenue were Rs. 59,189-11-1. In the year now under review, viz., 1863-64, the receipts up to date, without including the items still to be credited, amount to Rs. 70,988-5-4, shewing an increase of Rs. 11,798-10-3. The timber at the depôts at the close of 1862-63 was estimated at Rs. 20,000, while at the close of 1863-64 it may be most fairly taken at Rs. 78,766, which shews an increase under this head of Rs. 58,766; so that, even in a pecuniary point of view, the condition of the Department, as I anticipated, may be said to be improving. The actual accounts will shew, when made out, an increase on these sums.

60. I regret sadly the many imperfections of this Report, which indifferent health has prevented my completing and arranging with the care I should otherwise have wished.

Statement of Estimates and Receipts for 1863-64.

	Budget Estimate, 1863-64.			Actuals realized.			Remarks.
	Rs.	A.	P.	Rs.	A.	P.	
I.—Sale of Timber	45,000	0	0	26,623	3	2	The decrease on the estimate here is on account of no sleepers having been sold. They are however included in value of timber on hand.
II.—Duty on British Timber ...	25,000	0	0	39,213	5	2	Excess on account of sleeper receipts.
III.—Miscellaneous							
1st. Grazing Duty	6,100	0	0	512	6	7	Account of Mundla Grazing Duty not received. Must be credited when the accounts are made out.
2nd. Farm of Seonee Forests ...	1,605	0	0	1,900	0	0	
3rd. Rent of Mines	2,545	0	0	.....	...	...	No return from Saugor this year for Heraporo Mines.
4th. Produce of Forests ...	2,500	0	0	2,739	6	5	For 9 months, 3 months to be included.
Total ...	82,750	0	0	70,988	5	4	
Sums still to be credited				7,000	0	0	
Timber at depôts estimated				78,766	0	0	
Grand Total ...				1,56,754	5	4	

Statement of Disbursements for 1863-64.

	Actuals.			Total.			Estimate for 1863-64		
A.—Works.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Beejoragogurh sleepers	14,937	0	3						
Mundla Forest Work	6,000	0	0						
Baitool ditto ditto	3,000	0	0						
Hoosbungabad ditto	500	0	0						
Rumnah Gurrakotta	500	0	0	24,937	0	3	27,000	0	0
B.—Maintenance Charges.									
Purchase of Elephants	1,650	0	0						
Food and keep of Elephants	2,362	1	6						
Other contingent charges	1,347	12	9	5,359	14	3	6,600	0	0
C.—Establishment.									
Pay of Conservator	9,600	0	0						
Ditto Assistants	9,031	8	0						
Office Establishment	2,545	1	0						
Forest Department charges	11,959	14	11						
Travelling and Deputation Allowances ...	4,274	0	8	37,410	8	7	43,704	0	0
D.—Reserve	.....	...	...	.....	...	...	3,858	0	0
Total. ...	.....	...	...	67,707	7	1	81,162	0	0

In the Establishment there is an apparent saving on the Assistant's pay, but this will have to be paid to Lieutenant Freeborn on his name appearing in Orders. In the Subordinate Forest Establishment also there is a saving, as several contemplated additions and charges have not yet received sanction.

Statement of Debits and Credits for the year 1863-64, *as far as it can be ascertained up to the present date, but subject to correction on re-examination of the Accounts.*

	Rs.	A.	P.	Rs.	A.	P.
I.—Cash received on account of sale of timber	25,651	11	2			
II.—Do. do. duty on British timber ...	38,747	8	8			
III.—Miscellaneous forest produce— ...						
1st. Grazing Duty	512	6	7			
2nd. Farm of Sconee Foresst ...	1,900	0	0			
3rd. Rent of Mines	.. ..	...	...			
4th. Produce of Forests	2,739	6	5			
				69,551	0	10
Due by Messrs. Hood, Winton, and Mills, on account of sale of timber	971	8	0			
Do. do. on account of duty ...	465	12	6			
				1,437	4	6
Other Items to be credited in account.						
Mundla Grazing Duty (probably) ...	4,000	0	0			
Saugor Iron Mines (probably)	2,000	0	0			
Produce of Forests, 3 months (estimated) ...	1,000	0	0			
				7,000	0	0
				77,988	5	4
Timber in Store.						
16,472 sleepers in Beejoragogurk ready prepared, at Rs. 3 each (estimated) ...	49,416	0	0			
485 long lengths in Beejoragogurh, at Rs. 10 each (estimated)	4,850	0	0			
4 000 Teak stumps in Baitool, at Rs. 3 each	12,000	0	0			
2,500 Teak logs collected in Mundla, at Rs. 5 each	12,500	0	0			
				78,766	0	0
GRAND TOTAL ...	... .	...	...	1,56,754	5	4

	Rs.	A.	P.	Rs.	A.	P.
A.—Works.						
By Cash advanced on account of Beejoragogurh sleeper works	16,350	0	0			
Ditto ditto collecting timber in Mundla ...	6,000	0	0			
Ditto ditto in Baitool	6,000	0	0			
Ditto ditto in Hooshungabad	500	0	0			
Ditto ditto in Rumnah Gurrakotta ...	500	0	0			
B.—Maintenance Charges.						
Purchase of Elephants...	1,650	0	0			
Feed and keep of Elephants	2,362	1	6			
Other contingent charges	1,347	12	9			
C.—Establishment.						
Pay of Conservator	9,600	0	0			
Do. Assistants (not including Lt. Freeborn's pay)	9,031	8	0			
Office Establishment	2,515	1	0			
Forest Department charges	11,959	14	11			
Travelling and Deputation Allowances ...	4,274	0	8			
Paid Auction Commission for Teak logs sold in Baitool	818	13	3			
Paid Mr. Whittaker's debts as per letter from Secretary, P. W. D., No. 1143 of 29th October 1863	593	0	0			
				70,532	4	1
Balance estimated	.....	.	...	86,222	1	3
GRAND TOTAL ...	.....	...	...	1,56,754	5	4

APPENDIX A.

Proceedings of LIEUTENANT W. FREEBORN, *Officiating Assistant Conservator of Forests, Central Provinces, during the last working season.*

1. On the 15th December last I proceeded, according to instructions, from Jubbulpoor to Boejoragogurh, and received from Lieutenant Douglas all papers and maps connected with the Mundla and Jubbulpoor Forests; also an elephant "Mungulgunj," and a Moonshee, Shaik Furreed.

Commenced collecting logs; 1,200 collected, mostly bad, 400 fit for P. W. D.

2. I then proceeded through Jubbulpoor to Mundla, thence to the Jugmundel Hill, arriving on the 29th December, and immediately set to work collecting the logs there, the balance of the wood cut for Messrs. Norris and Weller. There are about 1,200 of these, all of which have been collected. The logs are generally very bad: there will only be about 400 out of the lot big enough for the Public Works Department; the remainder are between two and three feet in girth.

3. Having seen the work fairly set going on at Jugmundel, I started for the Nucta Pahar, arriving there on the 9th January, and proceeded to explore the hill for teak, but only succeeded in finding four trees big enough for the Public Works Department, which I marked, according to instructions.

Marking of trees.

4. In marking timber, I made a blaze on the tree at about four feet from the ground, and the Government mark or broad arrow stamped on it. I also had a broad red cross painted on the tree. In girdlings I had the sapwood cut through all round the tree, and have inspected the work to see that it was done properly.

Unowned logs; 40 fit for P. W. D.

5. There are some 200 *lawaris* logs on the Nucta Pahar, which I am about to have collected; out of which, according to measurement, there will be about 40 big enough for the Public Works Department.

29 trees marked.

6. I found and marked 29 good trees along the nullahs between the hill and the Boormeyr River, making in all 33 marked at the Nucta Pahar.

Scarcity of teak.

7. There is not much standing teak left about here.

34 trees marked; some fair ones left.

8. On the 12th January I proceeded to Jree; and on the banks of the Boormeyr River marked 34 good trees: there are some fair sized trees left.

9. There is saj, kowah and tinsa growing along the banks of the Boormeyr River.

200 trees fit for P. W. D. unowned, collected.

10. Near Jree I am collecting a number of teak, *lawaris* logs; also the saj, kowah and tinsa logs cut for Mr. Norris. There will probably be about 200 teak logs big enough for the Public Works Department.

Chowaree Gogur Hills; 165 trees marked.

11. On the 17th January I proceeded to the Chowaree Gogur Hills, and there found and marked 165 trees. There is very little teak of any size left on these hills.

200 teak logs fit for P. W. D.

12. I am collecting at Chowaree Gogur, a number of teak and saj *lawaris* logs; about 200 of the teak will be big enough for the Public Works Department.

Jugmundel: 565 teak marked.

13. On the 23rd January I arrived again at Jugmundel, and after visiting the work proceeded to explore for teak, and succeeded in finding and marking 565 good trees.

14. I found few standing trees just round Poondee; all the good wood has been cut and removed thence: but came across very good timber on all the rest of the hill, particularly in the direction of the Mirchee Koona Hills. There are still a good number of fine young trees untouched, that, in a few years, will furnish very good logs.

503 trees marked; good many promising trees left.

15. On the 29th January I proceeded to the Suggara Pahar, and there marked 503 good trees. There are a good number of fair sized growing trees left on this hill.

200 logs for P. W. D.

16. I have collected the 115 logs bought from Mr. Heyman (Mr. Whiting's timber) also a number of *lawaris;* out of all which there will probably, be about 200 big enough for the Public Works Department.

651 trees marked.

17. On the 6th February, I proceeded to the Mirchee Koona hills, and whilst there, marked 651 good trees. The wood on these hills has never been touched, consequently the timber is very large and good. There are a great number of fine young trees left untouched.

18. On the 20th February I arrived at Mundla, *en route* to Gurrakottah, and proceeded thence to Jubbulpoor, where I stayed a few days.

19. On the 7th March I arrived at the bungalow "Gurrakotta," and inspected the garden, nurseries, and teak reserve. I ordered part of the garden to be enclosed and plants to be sown in it, the proceeds from the sale of which would help to keep it up. I did not interfere with the nurseries, as they did not seem to require anything. I sanctioned the selling of two old bullocks employed for watering the plants, and the buying of a good buffalo in their stead. I ordered the Rumnah Teak Preserve to be cleared and thinned, and saw the work properly set agoing.

Gurrakotta bungalow, garden, nurseries, and teak reserve.

20. I ordered the bungalow to be white-washed and cleaned: it does not seem to want repairing. I would recommend that a table and two chairs be furnished.

Bungalow repaired—furniture required.

21. I ordered one of the chupprasees from Shagurh and Dulputpoor to Ratgurh, to look after a young Teak Forest lately found in that direction.

Young Teak Forest. Chupprasee appointed.

22. Having left funds with the Jemadar with which to carry on the work, I started for Mundla, passing through Jubbulpoor. Whilst there, I rode to Goaree Ghât, and inspected the timber lying there.

Inspected timber at Goaree Ghât.

23. I have lately ordered to be confiscated a number of teak logs, above sleeper length, brought to Goaree Ghât by Heralall: about 400 of these will probably be big enough for the Public Works Department.

400 confiscated logs fit for P. W. D.

24. I arrived at Mundla on the 6th April, and proceeded to Toplah, arriving on the 10th April. I inspected the timber collected there, and found that the work had not been done to my satisfaction, so proceeded at once to get it done properly.

Mundla timber collected,—work not satisfactory, so stayed there.

25. For convenience of carriage, and to make as much out of the timber as possible, I had the logs cut into lengths. If a tree was not of sufficient girth for a first-sized log, and would make two good second-sized ones, I had it cut accordingly: by this means I obtained a good number more logs.

Carriage arrangements for logs.

26. Having seen the work properly set agoing at Toplah, I proceeded to Malumjola, where I was informed that I should find lots of teak.

27. On my way to Malumjola I came across a nice lot of saj, some very large trees, on the banks of the Kownie Nullah, which runs through the hills between the Halo and Bunjur Rivers, south of Toplah, and falls into the Hasburree River. There is also a good deal of sâl about there, but it is all amongst the hills, and it would not be an easy matter to get it out.

Sâl, but in inaccessible places.

28. I found some teak on the banks of the Jumuniah Nullah near Malumjola (about 9 or 10 miles north-west of Rengarkhar), but not in sufficient quantities to justify my marking the trees for the P. W. D.

29. The bases of the hills along the Bunjur in this direction are covered with sâl, but I did not come across any large number of big trees in any one place.

Sâl: nothing particular. Big trees scattered.

30. After spending a few days in exploring the country about Malumjola, I returned to Toplah to see how the work was progressing, and found it going on satisfactorily. From the trees already felled at Toplah, there will be about 1,400 logs big enough for the *P. W. D.*

1,400 logs at Toplah fit for P. W. D.

31. From a number of *lawaris* logs lying in the direction of Singarpoor, there will be about 80 procurable for the Public Works Department.

32. On the 3rd May I started to explore the Forests to the south-east of Toplah, from which by the end of May I shall have marked and girdled enough trees to make up the balance of the 7,000 logs required for the Public Works Department.

Total 7,000 logs for P. W. D.

33. I am now marking trees and exploring the Forests near Peepurwarrah and Tengadoobra on the Culpee Road. There seem to be a good number of large trees in this direction.

34. I have given special directions about the steps to be taken for preventing the collected logs from catching fire, particularly in the case of the sâl, which, from the quantity of resin it contains, burns easily and quickly. A great number of logs have been burnt whilst lying in the Toplah Forests.

Prevention against fire to collected logs.

35. I do not see how the sâl logs are to be carried from *Toplah to Mundla*, unless a road is made for carts.

Road required from Toplah to Mundla.

36. Whilst marking trees for the Public Works Department, I have cut and collected many partly unsound timber I came across.

Scarcity of labor.

37. At one time, during the cold season, I found it very difficult to get sufficient coolies for the work, for two reasons,—1*st*, because they are so much better off than they used to be, that they do not care about being employed; and 2*nd*, it is my impression that the headman at Googree did not exert himself to assist me in getting men.

38. The Gonds in these parts will not get the timber out of the jungle at so much per log, unless the wood is small, and they are allowed to work at their leisure.

Cultivators should stack any big logs for Government.

39. I would recommend that when the *bygaree* get leave to clear a piece of Forest land for growing corn, it should be incumbent on them to collect and stack in a safe place all the big logs for Government. I find that at present they burn the wood, the ashes of which are good for the soil.

Servants with fever.

40. There has been a good deal of fever amongst my Native Assistants and personal servants since my arrival in the Mundla Jungles, even up to the present time; though why they should be ill now, I cannot understand, for the water is good and plentiful, and the climate splendid.

Supplies obtainable.

41. I have always been able to obtain supplies by sending some little distance for them to the large villages.

Gold washing.

42. Whilst on the Jumuniah Nullah I came across several parties of Natives washing for gold, which they told me was obtained there. I fancy it cannot exist in any quantity, for I wanted to buy some, but could not get any.

Number of logs required for the Public Works Department, Jubbulpoor Division.

5,000	12 feet in length	and	10 inches	by	6 inches.
2,000	23 ditto	and	12 „	by	10 „
Total 7,000					

Where Obtainable.

Logs already felled at Nuota Pahar	... ...	40	Those are *about* the numbers obtainable: 2,300 have been measured by Darogah, the others are only probably numbers.
Ditto ditto at Jree..	... ...	200	
Ditto ditto at Chowaree Gogur	... ...	200	
Ditto ditto at Jugmundel ...	... ...	400	
Ditto ditto at Suggra Pahar	... ...	200	
Ditto ditto at Singarpoor ...	... ...	80	
Ditto ditto at Goaree Ghât	... ...	400	
Ditto ditto at Toplah	... ...	1,400	
Total already felled		... 2,920	
Trees marked this last season at Nuota Pahar	... ...	33	
Ditto ditto at Jree	... ...	34	
Ditto ditto at Chowaree Gogur	... ...	165	
Ditto ditto at Jugmundel ...	... ...	565	
Ditto ditto at Suggra Pahar	... ...	503	
Ditto ditto at Mirchee Koona	... ...	651	
Total number marked		... 1,951	
Total already felled	... ...	2,920	
Total number marked	... ...	1,951	
Balance to be marked	.. ..	2,129	
Total number required...		7,000	

APPENDIX B.

Dated Kittowlee, 9th May 1864.

Annual Report from—LIEUTENANT W DOUGLAS, *Assistant Conservator of Forests,*

To—CAPTAIN G. F. PEARSON, *Conservator of Forests, Central Provinces.*

Report sleeper work

I HAVE the honour to submit the following Report of the sleeper work in the Jubbulpoor and Beejoragogurh districts during the past working season, accompanied by a Tabular Statement shewing the total amount of work performed and expenditure incurred, since the commencement of the last official year, up to 30th April 1864.

II. The work began in March 1862, and up to the commencement of last working season, consisted in felling the timber, branching and cutting it into 10 feet lengths. Collection was also begun in a small way.

Progress 1862-63.—Felling, branching, and 10 feet length.

During the season 1863-64, however, it will be observed that the body of the work has been,—collection of timber in sleeper logs, and long lengths, preparation of sleepers, cutting 10′ lengths, and lifting from rivers timber liable to be washed away or buried in their deposit during the monsoon.

Progress 1863-64, collecting sleeper logs and long lengths, cutting sleepers and lifting logs from dangerous places.

III. I shall now offer a few remarks in explanation of the various headings given in the Tabular Statement, which I hope may convey some idea of the nature of the work.

Explanation of Tabular Statement.

IV. The object of this is threefold, to facilitate the working of the timber by concentration of labour; to arrive at an estimate of the actual value of the logs; and to ensure their preservation from jungle fires.

Collection of logs, and long lengths.

Numerous depôts have been formed in this and the Jubbulpoor district, varying in size according as the timber was found, closely or sparsely scattered in the jungles, and according to the facility in concentrating it. In deciding the positions of these depôts, it has been my object to collect the timber sufficiently for work, without incurring unnecessary expense in carrying the rough material over obstacles, rather than to increase the size of main depôts; and I have, therefore, when it appeared desirable, collected and sawn up smaller lots of timber, including their accounts under the heads of larger depôts, to which they were adjacent. In the Jubbulpoor district, where a quantity of the timber is very much scattered, and the nature of the country prevents the formation of large depôts, I have divided the accounts of the work into three heads, *viz.*, Kumturrah, Peherwah-Kuttorees, and Narrainpore-Bagarajee, indicating the vicinity in which depôts are formed, and showing the position of each particular lot of timber, in a marginal note, thus avoiding the confusion in accounts which a number of small depôts under separate heads are so likely to give rise to. In collection, I find that considerable vigilance is necessary to prevent the workmen bringing in unsound or undersized timber, as well as to ensure their lifting heavy logs and those in difficult places.

Depôts been formed, their positions.

The only method of collection I have found practicable is that of slinging the logs and carrying them into depôts by "Sangha;" as a rule the ground is such as to prevent the employments of carts or draught of any description, except, perhaps, elephant draught, which is not obtainable; and judging, from an experiment I have seen tried in the collection of long lengths by timber carts and bullocks, I think the mode I employ is undoubtedly the cheapest, and best for a temporary collection to depôts which ought, as far as practicable, to be situated where access for carts is easy. Sometimes this cannot be effected when it is expedient to saw up and dress the timber as near where it was cut, as possible; thereby avoiding the carriage of waste wood over bad ground, where the sleepers are more portable than rough logs.

Collection of logs at depôts.

V. The preparation of sleepers in logs of large girth, the sleepers are sawn on all or three sides; but in the majority of cases, where a log will only yield one or two sleepers, it is necessary to divide it with the saw, squaring it up with the axe. In some few instances, I have had very fair sleepers made from small timber, by merely dressing it on four sides with the axe, and "*bussulah.*" In all cases, the amount of sawing must be regulated by the shape, size, and quality of the log, and it requires experienced workmen to superintend the laying out of the timber to the best advantage, *i. e.*, to produce the best article obtainable from the log.

Preparation of sleepers.

The difficulty of obtaining experienced workmen, is one of the greatest to be encountered in the preparation of sleepers, and one, from which every work must suffer more or less in its commencement, and even after the men begin to know their work, strict superintendence is necessary to ensure its being correctly executed. Another fertile cause of bad work is the imperfect knowledge possessed by natives, of the correct manner of sharpening and setting saws. I have observed this, not only among the workmen I have had occasion to employ, but also in several other workshops I have had an opportunity of visiting, and I have universally remarked, that not only are the saws subjected to unnecessary wear and tear, but also that their efficiency is materially damaged, especially in sawing timber of large scantlings; the slightest irregularity in the setting is liable to divert the course of the saw, and render the sleeper wavy.

Difficulty in obtaining experienced workmen.

Saws not fairly used.

VI. The cutting in lengths has been done partly with the saw, and partly with the axe. The former method, I am persuaded, is preferable, both for economy of the timber, as well as of labour, the work also being of a more finished character, a better opinion may be formed of the soundness of the log. As newly felled timber is liable to split at the ends, six inches, or a foot extra, should always be allowed, so that when the sleeper is sawn and dressed, the cracked ends may be cut off without damaging its length, and its quality thus ensured.

Cutting 10' lengths.

A margin should be given in the lengths of sleepers.

VII. The lifting logs from river beds being in every way similar to collection, on which I have already offered some remarks, do not think this head merits further notice.

Lifting logs from river beds.

VIII. The total expenditure during the past working season, amounts to Rs. 14,937-0-3. The particular items composing this amount have been supplied in the accounts forwarded to your office, and the aggregate comprises the pay of all workmen, Establishment, the cost of 100 saws, and the outlay on a small bungalow I have erected at Kittowlee, as authorized by you last season.

Expenditure.

IX. I have always found the District labour sufficient for all common work such as felling, branching, barking trees, cutting 10' lengths, collection, &c. However, when the preparation of sleepers began, I got several trained sawyers from different parts of the Jubbulpoor district, and from these the villagers began to learn, being stimulated by the prospect of increased pay, and since then have become fully equal to the average sawyers I have been able to obtain. After last rains, I sent to Jubbulpoor for about 40 pairs of sawyers, who came on higher pay and worked for a short time; however, from various causes, I found them unsuited to the work, and unfortunately dysentery broke out in one gang, and it was with difficulty I could get them to work out their advances, since then, I have carried on almost entirely with village labour, and think that, with proper supervision, it is quite equal to the imported labour.

X. I have, during the past season, worked partly by petty contract, and partly by daily labour. I much prefer the former, when workmen are obtainable at fair rates, who will, at the same time, pay up the men they employ, without this of course, all work must fall to the ground.

Petty contract & daily labour.

It is impossible to work either by "teka" or daily labour, without advances, but the great advantage in teka is payment being made by the piece, instead of on account. In a work so much scattered, and which on that account admits only of limited supervision, teka is manifestly the simplest and best, though, it is not without its difficulties, thus, a tekadar gets an advance to commence work, which he at once begins. On measurement being made it is found, that, for some reason he has not been able to succeed at the rates allowed, the reason may be either that he has spent his advance in other ways, or has not been attentive to his work, or that the allowed rate is unequal to the work required.

Advances necessary.

The tekadar always lays the default to the last reason and asks for an increase of rates, with a further advance to enable him to recover his losses. Accession to these requests must, of course, be a matter of discretion, though the employer is in case of refusal, always hampered by two considerations, *viz.*, that his work will stop, and (as the tekadar is generally not a man of property,) that the advance will be irrecoverable: compliance on the other hand is no guarantee, that next measurement may not find matters in the same state.

Contract.

With daily labour the great drawback is, being obliged to make payments on account, which, from the nature of this work, cannot be satisfactorily checked, and, therefore, his system is as open to abuse as the "teka" having the additional disadvantage of more complicated accounts; on certain occasions it may be employed with advantage, though, as a rule, I think the former preferable.

Daily labour.

XI. Among the different kinds of timber I have had to work in the Beejoragogurh district, the Sâl (*Shorea Robusta,*) is the most plentiful. It is to be found in the Jubbulpoor district near Kumturrah, Peherwah, and Kuttree, in the valley of the Mahanuddy, and along the hills by which it is bounded. These patches evidently belong to the main forest which extends from the Beejoragogurh district, at intervals along the Rewah side of the Mahanuddy valley. For sleeper purposes, sâl is unquestionably superior to any timber obtainable in these forests, being of a tougher and more durable nature as well as less liable to crack, and from its straight even grain it is generally a favorite with the work-people. The slabs obtained

from a good sound log will, I think, sufficiently recommend it to all judges, though a very large proportion of what has been cut, has turned out unserviceable from hollowness, dry-rot, and other causes, which I shall mention hereafter.

The Saj *(Pentaptera tomentosa,)* is also a good hard wood, of darker colour and coarser grain than the sâl, it is also a commonly cut timber in both districts, and when sound, a good timber for sleeper work. Unsoundness is however frequent, and it is very liable to crack and split.

The Kowa *(Pentaptera Arjuna,)* is also a very good timber, and commonly found on the banks of rivers and nullahs; it is generally of large girth at the stem, though very irregular in growth, but when sound logs of the required length are to be found, the sleepers it gives are generally very good, though, I believe, apt to crack and split. It is however a tough hard timber of dark colour, though not generally liked as a working wood.

Beejasal *(Pterocarpus Marsupium,)* is very similar to sâl in appearance when worked up, though rather lighter in colour, it is however inferior in durability and more liable to crack.

Of other timbers I have had occasion to cut up, I think Goorar *(Acacia procera* or *elata Grah,)* ranks among the best. Tendoo *(Diospyros ebenum,)* Hurdoo *(Nauclea cordifolia,)* &c, may all come in for sleeper purposes, though, as a rule, they all appear inferior in durability and quality to those I have mentioned.

Total out-turn of sleepers and long timbers. Sleepers 15,971.

XII. In the Beejoragogurh district the number of sleepers prepared up to 30th April, amounts to 15,971, and as the remaining work appears now to consist in clearing up the trees still remaining from the jungles and river beds, I can, therfore, only hope for an out-turn of about 4,000, or so, more. If to this be added 405 long lengths, already collected, and about the same number remaining for collection, the result will represent as nearly as I can form an opinion, the total out-turn in this district.

This is, manifestly, a very small out-turn from about 22,000 logs reported to be cut, and I must openly confess that it appears preposterous that, that number was actually felled. It is difficult, however, to arrive at the extent of the default, as a very great proportion of the timber has turned out useless from the following causes, *viz:*—

Hollowness, dry-rot, undersize, destruction by fire.—It is impossible to fix exactly the proportion of loss to be calculated on from these causes, but from personal observation, and opinions I heard expressed, I do not think it can be calculated at less than 50 per cent.

Hollowness and dry-rot have very frequently appeared in the timber of best size; the number of undersized logs I have seen is also considerable, a certain proportion has also been partially or wholly damaged by fire in the jungles, so that from these causes a very great proportion of the timber has yielded no out-turn.

In the Jubbulpoor district, as yet only 501 sleepers have been prepared, though 2,431 logs have been collected; which I have roughly estimated to contain 3,419 sleepers.

The remarks I have already made on the causes of loss in Beejooragogurh, apply equally to this district, and from what I have yet seen, the deficit from undersize and by fire will be greater than in Beejoragogurh. I have also already informed you that I have had reason to suspect that some logs had been burnt by an incendiary, which will account, partially, for a greater loss by fire. Although I have been unable to attach blame to any one on the above account, I have taken every possible precaution to prevent a repetition of the offence, and have desired the Deputy Commissioner to issue instructions to Malgozars regarding the preservation of Government timber cut, within the limits of their respective villages.

From the unfinished state of the work in this district, I am unable to state, with any precision, the actual out-turn of serviceable timber to be expected, but hope shortly to be able to form some idea of what may be looked for.

The Tabular Statement shows the actual amount of work executed during the past season, which, I regret, has not, by any means, come up to what I had anticipated; this, I must, in a great measure, attribute to want of co-operation on the part of my Darogah, in whom I have been very much disappointed. I trust, however, that I may, with new arrangements, be able to push forward the work in a more satisfactory manner. It must also be remembered that, during the rains, work cannot be carried on at the same rate as during the other seasons, and I trust, from what I have already said on the nature of the works, that this will be fully understood, as well as the other difficulties which have prevented my being able to show a more satisfactory account of the past season's work.

XIII In conclusion, I would add that my very best thanks are due to Mr. LeMesurier, the Chief Engineer of the Jubbulpoor Line, for the services of Mr Inspector Mann, which he has been so good as to place at my disposal. Mr. Mann has been of great use in general supervision of the work, and during the short time he has been here, has rendered me valuable service.

TABULAR STATEMENT *showing the Work executed and Expenditure laid out on the Sleeper Work in the Beejoragogurh Forests during the season* 1863-64

Year	Month.	Logs collected.	Long lengths collected.	Sleepers sawn.	10′ Feet length cut.	Logs lifted from river beds.	Amount aid. Rs.	A.	P.
1863	May ...	3,329	.....	230	1,687	42	936	7	6
,,	June ...	1,670	.....	1,114	318	97	1,134	6	6
,,	July ...	607	.....	688	259	65	615	14	9
,,	August ...	.....	.....	1,733	.....	.....	555	5	8
,,	September	.....	.....	1,106	.....	.....	369	3	9
,,	October ...	.....	.....	422	.....	.....	2,415	5	6
,,	November	36	.....	913	.....	.....	354	0	3
,,	December...	1,204	.....	1,932	147	.....	1,160	4	2
1864	January ...	699	.....	2,382	59	.....	1,714	15	10
,,	February...	1,515	165	2,115	90	.....	2,327	8	8
,,	March ...	1,158	241	2,147	.....	.....	1,837	0	10
,,	April ...	1,255	79	1,690	.....	.....	1,516	6	10
	Grand Total	11,473	485	16,472	2,560	204	14,937	0	3

REMARKS.

Expended in felling and collecting logs up to 30th April 1863 ... Rs. 9,618 2 10

Ditto from 1st May 1863, up to 30th April 1864 ... ,, 14,937 0 3

Total Expenditure to date ... Rs. 24,555 3 1

N. B.—The above does not include cost of supervision by Forest Establishment or pay of Assistant Conservator.

KITTOWLEE,
The 1st May, 1864.

(Signed) W. DOUGLAS, *Lieut.*,
Assistant Conservator of Forests.

(12)

APPENDIX C.

MEMORANDUM *of Reserved Forest Tracts in the Baitool District, for which application has been made to the Settlement Department. By* CAPTAIN G. F. PEARSON, *Conservator of Forests, Central Provinces.*

No. 1.—BOWERGURH AND JAMGURH TRACT.

1. Comprising the tract of hills of which Borda is the north point, and Tomroopoorn (on the Machna river) the south point. The road from Shapoor to Bankaburda where it crosses the Machna, the east point; and the hills above Burjorepoor, the west point, mainly consisting of the hills along the Machna and which lie between that river and the Morun.

2. This tract contains 41 villages, of which 26 are more or less inhabited, and 15 entirely deserted, as however in a few of the inhabited villages there are but 2 or 3 houses, it is probable that no proprietary right will be given in them. Assuming that the villages each on an average comprise an area of 2,500 acres, it will give the total area of the tract as about 156 square miles. It is not probable that one-third of this will be given in proprietary right with the villages, which will leave about 100 square miles for the Forest Department.

3. The real Forest in this tract probably does not exceed from 10 to 15 per cent. of the whole balance, after deducting the village sites and cultivated land; but by far the finest Teak grown in the Baitool district has come from the ravines of the Machna, above Bankaburda, and about Jamgurh, and the tract is therefore valuable. Even during the past year, I have obtained 56 large Teak logs (some of them previously cut and left there) the contents of which ranged from 22 to 35 cubic feet each, of sound timber.

4. There is also some magnificent Saj and Kowah (*Pentaptera tomentosa* and *Arjuna*) also Hurdoo and Kuddum (*Nauclea cordifolia and orientalis*) in the Machna ravines, as well as Tinnus (*Ojeinia dalbergioides*) of fair size, and fit for arsenal purposes. The Teak, however, which is left, is in inaccessible places, though formerly it grew all along the deep ravine through which the Machna flows. In the ravines of the great Jamgurh hill, and also around Kullianpoor, there is a small quantity of Teak left of fair girth but no great length, and in the ravines north of Jamgurh and along the northern slopes generally, as well as in the Machna, the young Teak is thriving, and promises well.

5. The general surface of the hills is, for the most part, bare and covered either with stunted Teak or Salee (*Boswellia thurifera*) and Gooloo (*Sterculia urens,*) there being but little soil and no water anywhere.

6. Thus it will be seen that the whole tract, as far as Forest is concerned, is much cut up into patches, the valuable portions consisting of the ravines themselves (many of which are very long and full of the densest jungle) and strips along the foot of the hills. The centre portion of the larger valleys is occupied generally by villages and cultivation, and the tops of the hills are bare; but, there are no large villages or any considerable area of cultivation within the limits above described.

No. 2.—SOUTH SOWLEGURH TRACT.

7. Lies between the Morun and Bajee rivers, the range of hills north of Cheerapatla being its south boundary, and the stream which runs down from near Poplea into the Bajee river, its north boundary. It contains 15 villages of which 13 are inhabited, but are very small indeed, and 2 entirely deserted. It contains an area of about 60 square miles.

8. There is no large Teak whatever left in these hills, which consist mainly of two large ranges divided by a great ravine called the Raneekoh. The numerous smaller ranges and ravines into which these hills are cut up, are covered with thousands upon thousands of young Teak saplings. These present a very varied appearance, and differ as much as it is possible to conceive in quality; in places they spring up in great numbers like elephant grass, and in places, they are straight, tall and thriving. I have included the whole block of hills, but it must be some years before it will be possible to decide, what it will pay to spend money in preserving, and what may be rejected, as never likely to come to any profitable size as timber.

In general the trees which grow along the skirts of the hills, whether of the main range or of only smaller ridges, are by far the most promising ; no doubt on account of the loam which is washed down from above. This, however, renders any attempt to form compact Forest blocks exceedingly difficult.

No. 3—Sowlegurh Khas.

9. Contains 7 villages all entirely deserted, except the Police post at Gowasein. There is no large Teak left here now ; there is a large quantity of young saplings ; but except in a few places, between Korsena and Gowasein, the Teak seems to me to be of inferior quality, and to have a tendency to become crooked after attaining a girth of 12 or 14 inches, and a height of about 20 feet. There is some fair Saj and Kuddum (*Pentaptera tomentosa* and *Nauclea orientalis*) here, and I have retained the tract for observation. The whole place has been entirely deserted on account of the ravages of tigers during the last four years.

No. 4.—Central Sowlegurh tract.

10 Comprises the range of hills lying between the Bajee and Morun rivers, and is bounded north and south by valleys which take down feeders of the Bajee river. It consists of 8 villages, 3 of which are inhabited and 5 deserted, and contains an area of about 30 square miles. The remarks on Tract No. 2, are applicable here.

No. 5.—Sowlegurh North Tract.

11. Contains 8 villages, of which 4 are inhabited and 4 are deserted ; one of the latter villages is held in jagheer by the Thakoorain of Lokurtully, and is in the centre of the tract which is unfortunate, as she is a troublesome character and will never give it up. The tract is bounded on the north and east by the Morun river, and on the west by the Bajee, and is situated in the angle comprised by the river immediately above their Junction. It is almost exclusively a Teak tract mixed with some small Tinnus on the tops of the hills and Salee (*Boswellia thurifera*) and Gooloo (*Sterculia urens*) generally over their surface. It contains about 30 square miles ; the hills comprised in this area are generally very high, on the plateau there is a good deal of short stunted Teak left, and in the south-eastern corner of the tract about the Poliskhera hills, there are 300 or 400 large Teak trees, though every one which I examined, was unsound. I am not sure of the reason of this unsoundness, but I believe it to be simply the result of old age, and that there is nothing peculiar in the locality to account for it. There are some fair Sheshum trees. (*Dalbergia latifolia*) in these hills, but they are rather inclined to be crooked. But in the long ravines which run up into the hills all along the south and west sides, the young Teak is specially fine, and it would be easily taken care of.

12. I have never seen better grown young trees than there are found here. There are also plenty of bamboos ; at the same time the actual area worth preserving (although it would be very difficult to determine it at present) would probably not exceed one-fourth of the whole.

No 6.—Kutunga Forest Tract.

13 This tract comprises the hills west and south-west of Chicholee, and which runs down between the Gangal river and the Taptee. It contains 24 villages, of which 8 are inhabited and 16 villages entirely deserted. It is a rough wild country, it generally contains no very high hills, and in many places is a pure Teak bearing tract ; but every portion of it has been so destroyed by Dhya cultivation in former years, that it is difficult at present to pronounce whether it will ever again come to be of any good.

Mr. Whittaker, a Contractor, cut about 5,000 logs here, just before I took charge of the Forest Department, but they seem to be all indifferent in quality, and there are few fair sized logs among them. It is, however, better to keep the tract under observation as there certainly is, a wonderful natural tendency in the soil here, to produce Teak of some sort

14 The village areas here are smaller than in Sowlegurh and Jamgurh, and the whole area does not exceed 70 square miles.

No. 7.—Kolgaon Tract.

15 This tract is in the Atneir purgunnah, south of Baitool station, and is a small isolated range of hills about 3 square miles in extent, containing some very fine young Teak. It is conveniently situated and can be easily preserved.

No. 8.—Taptee River Tract.

16. I propose to preserve a strip of land all along the Taptee, from the neighbourhood of Jullar as far as Mohta, at the boundary of the Baitool District, next to Berar and Hoshungabad. A portion of this will be formed into a plantation as has been proposed before, and in many places there is in the ravines along the banks of this river, abundance of young Teak of the very best description, now springing up.

No. 9.—Raneepoor Tract.

17. This tract contains 7 deserted villages in the east corner of the Baitool District. There is little or no Teak on this side, but the timber generally is good; and, as the whole is a deserted tract, it is well to make a reserve here for observation. It may be found that Teak seed if sown, would spring up, and being near Baitool itself, it will be always useful to have some timber available.

18. Of the above large tracts of jungle, the control over which I have applied for on behalf of the Forest Department, about 50 per cent. bears Teak of some description, and I believe that from 15 to 25 per cent. will eventually turn out really valuable and worth spending money on; the remainder (or about 50 per cent.) is a useless desert of scrub jungle and rocky hills, with neither soil nor water for the nourishment of any timber under any circumstances.

19. I have carefully examined these jungles during three successive years, and I may, at all events, claim to know the localities within the limits above described; there can be no doubt that many thousand tons of Teak has been supplied to the cities of western India during the past ½ century, and therefore if the Forests can be restored, may be supplied again. My first idea on inspecting them with a view to form reserved Forests, was, that 18 or 20 small tracts should be selected and marked off, where the timber seemed to flourish best. But Doctor Brandis seemed to think that it would be preferable and more convenient to form large and symmetrical blocks of Forests.

20. This idea, however, he seemed again to give up after reading my last year's Forest Report, and now, after a most careful and detailed personal examination of the above tracts, I am convinced that eventually our exertions must be directed to the preservation of small irregular and unconnected pieces of jungle, and that it would be a simple and utter waste of money, to endeavour to form any large and symmetrical forests like those which exist in Europe. At the same time to enable us to take time in fixing what places will be worth conserving, and separating them from the rest of the jungle which is worthless, I have applied for all the waste land which may be separated from the village lands at the settlement, wherever Teak grows in sufficient quantities, in order to give time to make a careful selection, to observe the growth and progress of the Teak in the several localities, and to carefully examine what places may, from their situation, be conveniently protected from fire.

21. It may be stated as an almost invariable rule, that all the really well grown young Teak trees are found either in the deep long winding ravines, which run up into the great hills ranges, or else scattered along the sides both of the larger streams and of the smaller water courses. The reason of this doubtless, is, that both seeds and loam get washed down from the sides of the hills to such places; certainly all the really large Teak logs that have been ever cut in these Forests, have been taken from such localities. There are, however, on the summit of many of the plateau very fair looking trees. It seems to me that a moderate depth of loam only is necessary for Teak to flourish well, and that it is rather benefitted than otherwise by a table of rock below it.

22. But it seems to me that there can be no doubt that in many places Teak flourishes well, and grows straight up to a certain point; when at once without apparent reason its head droops, it spreads out into branches, and it becomes crooked and stunted. Careful observation convinces me that this is the case in many places.

23. I observe that within the last three years, in very many instances, the restriction which has been placed on Dhya, has had the effect of causing the hill villages to become deserted, and the people to settle in the valleys, and to take to regular cultivation. I have no hesitation in saying that the regular cultivation in the Morun valley from Dodramaw up to Tongnya and Neemgurh, is three-fold, what it was three years ago, when I was here at this season, while Dhya cultivation has proportionately decreased. This proves that the course pursued of steady pressure was a sound one, and has had the desired effect of reducing the Dhya cultivations, without unnecessarily harassing the people.

24. I am in doubt if very large timber in any great quantity ever went out of these Forests; witness what Colonel Cunningham says in his work on the Gwalior timbers, published eleven years ago in 1853, page 33.

"The only Teak timbers now procurable are found in the Bajree Forest near Indore. The tree does not reach any great size, the largest timber not being more than 16 feet long by 9 inches square. Shorter planks 12 inches in breadth can also be obtained; but the quantity is limited."

25. There is no doubt that the Colonel here referred to Bagra on the Towah, though he erred in supposing it near Indore, which supposition he must have been led to form, because the timber which he got, came to Indore in the first instance; and indeed this is the general character of the Baitool Teak.

26. It will be seen, however, that there are still a large number of villages scattered throughout the selected Forest tracts. In many of these proprietory rights must be given under the terms of the Settlement, and tracts of jungle must be allotted to them, on account of their having regular cultivation within their limits.

27. It therefore seems to me that the following course should be followed—

1*st.*—Large tracts bearing Teak, and other good timber, within their limits to be selected *provisionary*, out of which the "special preserves" may hereafter be formed. *This has been done.*

2*nd.*—The Settlement Officer to be furnished with a list of villages which are included in the above tracts, and requested to declare, in which of the above villages he will grant any proprietory rights. *This has been done.*

3*rd.*—That an Officer of the Settlement Department, in company with one of the Forest Department, mark off by pillars, (and if necessary, by cutting a path through the Forest,) the jungle which is given to the villages in proprietory right, from the rest which will form a part of the provisional reserved tract. *This I have asked for.* It appears absolutely necessary to take this step at once.

4*th.*—That the Forest Department should then put up marks at ½ a mile, or a mile apart, as may be required all round the general boundaries of the provisional Forest reserves.

5*th.*—That the villages and lands which fall within the above mentioned provisional Forest preserves, being waste lands, but not eligible for sale under the waste land rules, be made over to the sole management of the Forest Department, in regard to revenue of whatever kind to be collected from them. This will give the Forest Department power over the grazing, mowah collections, &c. *I have asked for this.*

6*th.*—That a list of such villages be published in the Gazette, as not being liable to sale under the waste land rules.

7*th.*—That, considering the circumstance that no valuable timber now remains, and that all our efforts must be directed to the future, and that the really valuable young Teak is so much scattered, it will be impossible at present finally to decide in what place a large expenditure for protecting the Forest from fire, should be laid out. I believe it will be found best to separate some of the deep ravines for the purpose, and I think there will be no difficulty in keeping the fire out of them.

8*th.*—But there is another serious consideration, and that is "the tigers;" when the grass and scrub-jungle is encouraged to grow and become thick, there can be no doubt tigers will harbour in it, and no pay that can be offered will induce watchers to live alone in such places out in the jungles, where they are far from every village, or to walk round their boundaries. When I arrived at Gowasein last month, I found that the Police Guard, and the few sawyers who had remained there, had erected a stockade to live in, which might have resisted the attack of a considerable armed force, and they never ventured away from it except in a party, even during the day, and not a man went outside after dusk. Six men have been killed there within 3 weeks. This is no fictitious idea. The only way to get over this difficulty, is to allow 2 or 3 elephants to each district where tigers are troublesome.

28. I think, however, in this way 18 or 20 really good patches of timber, each containing from 2,000 to 10,000 trees might be formed, and every effort directed to keep fire out of them; for the rest I am perfectly sure that the attempt to form regular symmetrical forests, with walks and bounds and keepers' huts, would at present only be an utter waste of money. An Assistant living in the District, however, would, in a year or two, be able to do a good deal to carry out the above plan.

29. I am most strongly in favor of the attempt being made to keep fire out of some portions of the forests, and indeed, as regards fire, the great difficulty to me seems to be that if the tigers increase on account of the increase of grass and scrub jungle, it will be impossible to get people to live in the forests. The gonds even never go into a jungle now, where tigers are supposed to live, without setting it on fire before them, so as to see their way? moreover, if after every precaution fires do extend into the reserved tracts, there are so few villages that it will be impossible, I fear, to get men to extinguish them.

30. I would certainly not be deterred from attempting to carry out the excellent plans or forming reserved forests, by any apparent difficulties; but I would urgently advocate on proceeding carefully, and feeling our way as we go, or from sheer want of knowledge, we shall fall into continual errors, and only waste good money, while our successors will give us no credit for foresight or wisdom in our efforts for their benefit.

LIST OF VILLAGES.

No. 1 TRACT, *Bowergurh and Jamgurh.*

NAMES OF VILLAGES.	Inhabited or Deserted.	Number of Houses.	REMARKS.
Kurwar ...	Inhabited ...	15	
Purusdah ...	ditto ...	3 or 4	
Kuppureeah ...	ditto ...	15	
Doodaree ...	ditto ...	3	
Kasmar ...	ditto ...	4	
Kotah ...	ditto ...	10	
Tetur ...	ditto ...	10	
Handipanee ...	Deserted ...	0	
Sonadah ...	Inhabited ...	20	
Chiculdah ...	ditto ...	20	
Keolaree ...	Deserted ...	0	
Chilloreepoora ...	Inhabited ...	12	
Kappah ...	Deserted ...	0	
Nyagaon ...	ditto ...	0	
Chukuvar ...	ditto ...	0	
Kaleepanee ...	ditto ...	0	
Sowledah ...	Inhabited ...	8	
Danwar ...	ditto ...	5	
Koreeounlah ...	ditto ...	5	
Dowraghat ...	ditto ...	2	
Giteopoora ...	Deserted ...	0	
Moongoos ...	Inhabited ...	12	
Mundlagurh ...	Deserted ...	0	
Bore ...	Inhabited ...	6	
Kullianpoor ...	Deserted ...	0	
Kukurpanee ...	ditto ...	0	
Mora ...	Inhabited ...	12	
Banspanee ...	Deserted ...	0	
Banka ...	Inhabited ...	15	
Burda ...	Deserted ...	0	
Toota ...	ditto ...	0	
Doodur ...	Inhabited ...	10	
Temroo ...	ditto ...	10	
Konjitalao ...	ditto ...	20	
Bowergurh ...	Deserted ...	0	
Beejadeh ...	Inhabited ...	30	
Tongnyah ...	ditto ...	30	
Chicklee ...	ditto ...	25	
Kateewaree ...	ditto ...	6	
Jhirpah ...	Deserted ...	0	
Temtoopoora ...	Inhabited ...	6	

Villages, inhabited 26, containing 315 houses
Ditto, uninhabited 15

Total Villages 41

No. 2 Tract, South Sowlegurh.

Names of Villages.	Inhabited or Deserted.	Number of Houses.	Remarks.
Neemgurh ...	Inhabited ...	10	
Poplea ...	ditto ...	10	
Dolara ...	ditto ...	15	
Boorboor ...	ditto ...	8	
Kompta ...	ditto ...	10	
Neemgurh ...	Deserted ...	0	
Chirotoea ...	Inhabited ...	10	
Panda Jhiree ...	ditto ...	12	
Mandwadah ...	ditto ...	8	
Kaprawaree ...	ditto ...	3	
Ranockoh ...	Deserted ...	0	
Gowah Jhirrup ...	Inhabited ...	7	
Ambapoora ...	ditto ...	20	
Bor ...	ditto ...	10	
Saley Khond ...	ditto ...	10	

Villages, inhabited 13, containing 133 houses.
Ditto, uninhabited 2

Total Villages 15

No. 3 Tract, Sowlegurh Khas.

Names of Villages.	Inhabited or Deserted.	Number of Houses.	Remarks.
Gowasein ...	Deserted ...		
Korsena ...	ditto ...		
Tanda ...	ditto ..		
Sowlegurh ...	ditto ...		
Charkhera ...	ditto ...		
Dokna ...	ditto ...		
Kokna ...	ditto ...		

Total Deserted Villages 7.

No. 4 Tract, Central Sowlegurh.

Names of Villages.	Inhabited or Deserted.	Number of Houses.	Remarks.
Poliskhera ...	Deserted ...	0	
Bullore ...	Inhabited ...	15	
Baladongree ...	Deserted ...	0	
Padaldah ...	Inhabited ...	6	
Bhorkhera ...	Deserted ...	0	
Tanda ...	Inhabited ...	4	
Jamnuggree ...	Deserted ...	0	
Nuzzurpoor ...	ditto ...	0	

Villages, Inhabited 3, containing 25 houses.
Ditto, uninhabited 5

Total Villages, 8

No. 5 Tract, North of Soulegurh.

Names of Villages.	Inhabited or deserted.	Number of Houses	Remarks.
Jhireeadho ...	Inhabited ...	10	
Chittoopoora ...	Ditto ...	2	
Parasda ...	Ditto ...	12	
Karadah ...	Deserted ...	0	
Punchee ...	Ditto ...	0	
Timurnee ...	Inhabited ...	10	
Kotmee ...	Deserted ...	0	

Villages inhabited 4, containing 34 Houses.
Ditto uninhabited 3

Total Villages 7

No. 6 Tract, Kutunga Forests.

Names of Villages.	Inhabited or deserted.	Number of Houses.	Remarks.
Kutunga ...	Inhabited ...	15	
Doodaree ...	Ditto ...	15	
Japphul ...	Deserted ...	0	
Khamapoor ...	Inhabited ...	20	
Lapur ...	Deserted ...	0	
Lukurjam ...	Inhabited ...	10	
Paruspanee ...	Deserted ...	0	
Kaukurpanee ...	Ditto ...	0	
Koond Bakajun ...	Inhabited ...	25	
Daragohan ...	Deserted ...	0	
Butkee ...	Inhabited ...	15	
Nahurpoor ...	Deserted ...	0	
Nandore ...	Ditto ...	0	
Durabee ...	Ditto ...	0	
Kuchmar ...	Inhabited ...	13	
Patree ...	Ditto ...	15	
Towraee ...	Deserted ...	0	
Raksee ...	Ditto ...	0	
Sewnee Maikur ...	Ditto ...	0	
Saroomee ...	Ditto ...	0	
Gotiah ...	Ditto ...	0	
Peeplee ...	Ditto ...	0	
Chamil ...	Ditto ...	0	
Bulleyah ...	Ditto ...	0	

Villages inhabited 8, containing 128 Houses.
Ditto uninhabited 16

Total Villages 24

No. 7 Tract, Kogaon.

Kolgaon Schree, between Autneir and Baitool.

No. 8 Tract, Taptee River.

The banks of the Taptee River, including the ravines and banks.

No. 9 Tract, Raneepoor.

Names of Villages.	Inhabited or deserted.	Remarks.
Dangwah ...	Deserted.	
Bopalee ...	Ditto.	
Jaukodur ...	Ditto.	
Belun ...	Ditto.	
Kurrutwane ...	Ditto.	
Lapardana ...	Ditto.	
Kumalpoor ...	Ditto.	
Beeja ...	Inhabited.	
Beepulkotah ...	Ditto.	
Jamundabra ...	Ditto.	

Villages inhabited ... 3
Ditto uninhabited ... 7

Total Villages ... 10

APPENDIX D.

MEMO. *on the* TEAK *and* SAL *Forests about the* PUCHMURREE *or* MAHADEO HILLS, *in* CHINDWARA. *By Captain* G. F. PEARSON, *Conservator of Forests, Central Provinces.*

General situation and character.

The Boree Teak Forest is situated at the foot of the Puchmurrees, immediately south of the range and below the Belkunda Hill, one of the most prominent peaks of the range. It is bounded on the west by Sonebudr River, and comprises the village areas of *Boree, Errapilla, Peepela, Hondree, Majoora, Jolee* and *Larma*, extending partially to the east into Bobye and Eklama, and west across the Sonebudr into Deim of the Hoshungabad district. The area of the best Teak Forest is from 16 to 20 square miles; but from 35 to 40 square miles are more or less covered with Teak.

Soil.

2. The Teak producing area comprises several ranges of hills, some of which are of considerable elevation, consisting partly of the sandstone of the Puchmurrees, and partly of trap, which in places, overlies it. The ranges of the hills are separated by considerable streams, which run into the Sonebudr.

Description of Forest.

3. The Forest is perhaps the only one in the Central Provinces which is the property of Government, in which Teak of valuable girth remains. In the best parts of it, Teak is the only tree to be found, interspersed with a few trees of blackwood, (some of large size). *Dalbergia latifolia* and Tinnus, (*Oojeinia dalbergioides,*) the whole intermediate space between the Teak trees being filled by a dense thicket of bamboos. In other poorer portions of the Forest, Lendya, (*Lagerstræmia parviflora,*) Dowra, (*Conocarpus latifolia*), and Tendoo, (*Diospyros species,*) are found more or less abundantly scattered; but in all cases dense masses of bamboos are found everywhere.

4. The condition of this valuable Forest is most deplorable: in fact, nothing more execrable can be imagined than the treatment it has received through past years. Except in Larma, there is no regular cultivation whatever within the limits of the tract, although there is a considerable population; and in consequence of this, some hundreds of acres have yearly been cleared for Dhya cultivation, and large portions of the Forest have been thus left entirely bare. The consequence has been that although some, not all, of the larger trees have escaped injury, yet where the Dhyas have been made (and this is probably over three-fourths of the whole area,) the branches and tops of the trees have been lopped off, while the younger trees have been destroyed altogether, so that they bear but a small proportion to the larger trees. I must, however, remark with approbation the wonderful obedience which the people have shewn to the order against felling young Teak in the Dhyas, as in all the more recent Dhyas which I examined, the young Teak trees had been most scrupulously spared. No Dhyas in new places have, of course, been permitted to be made.

Stoppage of Dhya cultivation necessary.

5. But cutting and burning the jungle at all for the purposes of cultivation must be at once entirely stopped here, and a Government Reserved Forest must be formed with as little delay as possible, and as there is no room at all for regular cultivation (except perhaps a few acres at Boree) means must be taken to induce the people to remove to other villages out of the tract. Harsh and hasty measures need not be had recourse to, for all the mischief that can be done, has for the most part, been already effected; and it is impossible for the people to be turned out at once without providing for their subsistence elsewhere; but nevertheless this object must be steadily kept in view. I have applied to the Settlement Officer of Chindwara, and urgently requested that no proprietory right to any land whatever may be granted in this tract; and I have pointed out to him that there is *no regular permanent cultivation* whatever there. If no proprietory right is granted in the villages, I will very soon effect the removal of the people elsewhere, without using any harshness.

Amount of timber in the Forests.

6. As regards the amount of timber left in the Forest, it appears to me that there is a very considerable amount of trees of the III Class (*i. e.*, trees between 1′ 6″ and 4′ 6″ in girth). There are also a considerable number of trees of from 4′ 6″ to 6′ 0,″ in girth, but I saw very few trees, and only measured one tree which could have exceeded 6 feet; and, I am of opinion, that a girth of 6 feet and a length of about 30 feet is the maximum size of log to which timber will attain to in this Forest. As I said before, the amount of young trees is lamentably small, and judging from the above circumtances, I think that 25 years ago, probably the Forest was unharmed, either by Dhya or felling. The following survey will give some idea of the relative proportion of the different classes of trees to each other, in the general Forest:—

Area, measured 1,000 feet in length, 210 feet in breadth: there were counted—

2nd Class Teak trees	...	...	11
3rd Class ditto	...	...	82
4th Class and saplings ditto	...	...	37
Total Teak trees ...	...	...	130

Of the above in one half of the area, there were counted—

2nd Class Teak trees	...	...	...	...	...	8
3rd Class ditto	...	...	...	...	...	38
4th Class ditto	...	...	...	...	...	11

and taking the remaining half of the area, by each hundred feet, severally of length, there were counted in—

	2nd Class. Teak trees.	3rd Class. Teak trees.	4th Class. Teak trees.
First 100 feet	1	9	1
Second do. do.	1	7	1
Third do. do.	0	14	1
Fourth do. do.	1	3	5
Fifth do. do.	0	11	18
Total Teak trees	3	44	26

From the above it will be seen that while the 3rd Class trees are distributed with tolerable regularity over the whole area, the 2nd and 4th Classes are very irregular, depending much on their luck in having escaped the axe. I may mention that a short distance further on, I came on six fine trees of 2nd Class, all standing together, while near them was an old Dhya in which the young Teak had sprung up again, and in which there were hundreds of saplings.

7. The above rate will give a proportion to the square mile as follows—

2nd Class Teak trees	...	...	...	...	1,430
3rd Class ditto	..	...	...	...	10,660
4th Class ditto	...	...	...	...	4,810
Total Teak trees per square mile		...	...	...	16,900

It is very difficult indeed on this to frame, what may be a reliable estimate of the timber in the whole Forest, but allowing one thing for another, I believe, as regards 3rd Class trees the above is a fair average of the rate at which the trees stand; and as ten square miles may be set down as the area actually under Teak, I should therefore estimate the 3rd Class Teak trees in the Forest, at one lakh.

8. As regards the 2nd Class trees, they are so irregularly scattered, that nothing short of actual enumeration will suffice to ascertain their number. I believe, however, that there are between 5,000 and 10,000; and as regards young trees, I hope there may possibly be between half a lakh and a lakh of them also in the Forest.

9. It is most lamentable to see the number of fine trees half burnt which are lying all over the Dhyas, having been formerly cut down in the most wanton manner by the cultivators. Many of these still contain much valuable timber, if their charred outsides are removed. In fact, the whole Forest is full of half burnt logs lying about.

10. I sincerely trust that Government will allow an Assistant to be stationed at Puchmurree for the care of this tract, and of the Deinwah Sâl Forests, and for the preparation of sleepers, &c. There is two good years work for any man to put this tract alone in order, while the timber collected from it will give an ample revenue to meet all expenses. Not a scrap need be wasted here. The half burnt logs as well as a number of the pollarded and unsound trees should be turned into sleepers; while the logs which are too much burnt for timber or sleepers should be made into charcoal, the preparation of which will, I believe, pay very well from refuse pieces of Teak. A large number of the 2nd Class trees also may be felled, and room made for those which are growing. Indeed scarcely any of the 2nd Class trees will improve by standing, as nearly every one show signs of decay, and they are deteriorating year by year. In fact they are over-grown as it is. I have no doubt that, with care, this Forest will produce to Government from 2 to 3 lakhs of Rupees, at least within the next ten years; and after that, a regular and continued revenue of 15,000 to 20,000 Rupees per annum.

11. But nothing can be done without elephants to move the heavy logs. The ground is difficult, and buffaloes are of no use for heavy logs; and the consequence has been, that up to this time, no large logs have been removed from this Forest; but all large logs have been cut up previous to removal. Two or three elephants at least should be attached to the Officer in charge, and as he would have but little travelling, they should be used entirely for dragging timber. The road also from Errapilla by Dean to Bagrah, in the Hoshungabad valley, must be made practicable for timber carts.

Necessity of Elephants.

12. Meanwhile I have ordered the Baitool Darogah to do what he can at once to collect the timber lying about in the jungles, so that it may be saved from further injury, and with a view to converting it into sleepers and charcoal. But he is much over-worked as it is, and it is impossible, until the application I have made for more Assistants, as well as for elephants is met, that much real work can be done. I may mention as one good fact that there seem to be very few tigers here, which give so much trouble in the Baitool Forest.

Immediate measures to be taken.

13. This Forest is situated in the Deinwah valley below the scarps of the eastern face of the Puchmurree hills. It is the property of the Puchmurree Thakoor, but has been made over to Government to be worked.

Delakaree Sâl forest.

14 I was unfortunately prevented by illness from completing an accurate survey of this Forest, but the following is the result of what I accomplished in it. The sâl of the Deinwah valley is an isolated patch, form the great Sâl belt of Central India, from the nearest point of which it is separated by a distance of near 200 miles in a direct line, namely, from the Sâl Forest on the Rajahdar Ghât Range, south of Mundla ; and it is the only instance of Sâl being found west of that tract. It may be stated that the Sâl is never found as a solitary tree or scattered about in twos or threes, but invariably forms a Forest of itself, driving out, partially, or entirely, (from the readiness, with which the seed springs up) all other descriptions of tree. The Saj, *(Pentaptera tomentosa,)* is the only tree, which seems able in any degree, to hold its own with the Sâl.

15 The Delakaree Forest may be said to extend over an area of about 50 square miles, *viz.*, about 10 miles from north-west to south-east ; but nearly half of this area has been cleared for regular cultivation, and the belt of Sâl does not certainly cover more than 20 square miles. Its limits may be stated as follows.

16. North and north-east the village of Doree, distant from Delakaree 4 or 5 miles east Kopoornalla 3 miles : south and south-west the limits of Pertabgurh and Badla 5 miles · west the Dhar River at Muggurdah 2 miles. The quality of the Forest differs very much in different parts ; but from what I saw of the trees, I think that probably (as has been found to be the case in Beejoragogurh) many of them may be unsound. I cannot myself think that this unsoundness is the result of the jungle fires, because in the Sâl Forests there is scarcely ever any grass, which will not thrive under the sâl trees, and fires of any considerable extent rarely occur. I believe it is the result of old age.

In this Forest the 3rd Class trees are by far the most numerous, as is the case in Beejoragogurh ; 2nd Class trees generally appeared to bear the proportion of 1 to 6 or 7 of the 3rd Class trees, or about 15 per cent. 1st Class trees are to be found only in certain situations where the soil has proved especially favourable.

17. The soil here is identically the same as in Beejoragogurh, being a detritus of sandstone ; and the Forest in every way much resembles that of the latter locality. The same abundant thickets of 4th Class trees and saplings are to be observed wherever clearings have been formerly made. On the west side of the Forest, in a length of one mile, counting the trees within a space of 70 yards on both sides of the road, or a total width of 140 yards, there were observed 588 trees of the 2nd and 3rd Classes, *i. e.*, from 1′ 6″ to 6′ in girth, of which about 9 were 2nd Class trees or trees of above 4′ 6″ in girth. The trees which measure 3 feet to 3½ feet in girth bear a very large proportion to the whole. Many of the latter description are crooked and knotted, and by no means of a promising appearance, and would be useful for nothing at all. Indeed the timber of this Forest will not, in my opinion, be ever good for much except sleepers. I think the portion of the Forest which I counted as above was considerably below the average, as regards both the number and quality of the trees. I should at least double the number of trees to obtain an approximation of the contents of the Forest. This would give about 15,000 trees above 1′ 6″ in girth to the square mile, and of these I should think there were per square mile—

500 trees 1st Class, or of 6′ and upwards in girth.
1,500 trees 2nd Class, or from 4′ 6″ to 6′ ditto.
1,300 trees 3rd Class, or from 1′ 6″ to 4′ 6″ ditto.

The 4th Class trees and saplings, are too numerous to count, and it would be useless to do so. I should think there were altogether about 3 lakhs of trees in the Forest above 1 foot 6 inches in girth, but of these probably one-third are valueless from various causes. I must however state that the above remarks are not rested on a sufficiently protracted examination for me to guarantee their accuracy, and are partly the result of my recollection of my former examination of the Forest. However, except as a resource for the preparation of sleepers for the Great Indian Peninsula Railway, Government have no interest in this Forest, as the profit belongs to the Puchmurree Thakoor.

APPENDIX E.

Extract of a letter from MR. ROSS, *the Settlement Officer, Nagpoor, dated 3rd April* 1864.

I did not reply to your note about the Teak on the road side from Salwaree to Thulaignon, as I was about to inspect the Pergunnah, and waited for what the inspection should show. As you surmise, the jungle on the direction goes with the villages; but the Teak here is nothing to that growing on the tract that has been reserved, *viz.*, on the central hilly tract of the Kondhalee Pergunnah, (colored pink on the lithographed Map of the District). I don't know whether you have visited this part, but begin at Rahutee, south-west of Kondhalee and proceed to Bangrapoor, Dhuga, Mandgaon, Dhamkoond and Malaigaon, and you will find hosts of Teak and Tinsa saplings that are well worth conserving; and they ought to be looked after, for, notwithstanding the prohibition, I saw that many had been recently cut, some of them are even 15 and 20 feet high now, especially about Dhuga.

APPENDIX F.

Extract from Note by the Deputy Consulting Engineer to Government, North-Western Provinces, on the Chief Engineer's Progress Report of the Allahabad and Jubbulpoor Railway, for the half-year ending 31*st December* 1864.

Sleepers.—The timely supply of the 450,000 sleepers required for the Allahabad and Jubbulpoor Railway has become a very serious question, and prompt measures have become necessary to provide that number in order to ensure the completion of the line by March 1867, the period stipulated in Messrs. Waring Brothers' contract. Instead of the 200,000 sleepers formerly expected from the Government Forests of the Mahanaddy River, and in the Beejoragogurh district, the out-turn from the trees already felled is not likely to exceed 75,000 sleepers chiefly of Sâl, Saj, and Kowah.

This great difference in the estimates may be ascribed to a large proportion of the wood turning out to be unsound, to the inexperience of the Forest Department, and the ignorance of the workmen in selecting the trees and in converting the timber into sleepers, to the unseasoned condition of the wood when cut up, to the losses by fire, &c. I went over the Forest depôts during January last in company with Mr. LeMesurier, the Chief Engineer, and Lieutenant Douglas, the Deputy Conservator of the Forests, and found that the sleepers already stacked were so indifferent that I arranged with them that Mr. LeMesurier should at once send one of his European Inspectors who is a practical sawyer and carpenter, to teach the native workmen how to use English saws, and to cut up the timber to the best advantage. It took three years for the Forest Agency in Kumaon to learn how to cut sleepers, and the immense number of sleepers rejected there, shows how dearly they paid for their experience. The rejections here also are likely to be heavy, and we cannot, I fear, reckon upon more than 75,000 sleepers fit for use out of the 30,000 trees already felled, while there are very few trees left standing in these Forests which are fit to be cut for conversion into sleepers.

No trees can now be felled anywhere in the North-West and Central Provinces, before November 1864, when the sap will again be down and the workmen can begin to enter the jungles in safety; the logs ought properly to be left two years, to season, but supposing only one year be given them to dry, the sawing into sleepers may commence in November 1865, and the sleepers would being to reach the line about March 1866, while the line must be finished by March 1867.

MEMORANDUM

ON THE

PROGRESS REPORT OF FOREST ADMINISTRATION

IN THE

CENTRAL PROVINCES, 1863-64.

BY DR. D. BRANDIS,

INSPECTOR GENERAL OF FORESTS.

This is the fourth Annual Forest Report written by Captain Pearson, and the first which treats of the whole of the Forests of the Central Provinces, as far as they have been brought under regular management.

A great variety of subjects are discussed in this Report; it may be useful to note those points which are of special practical importance. I follow the arrangement proposed in my Memorandum on the Report for 1862-63, dated Calcutta, 2nd February, which has not, however, been adopted in this Report. A systematic and uniform arrangement of Progress Reports of Forest Administration is desirable.

I. *Progress made in the survey and examination of Forest tracts.*—Appendix D. contains valuable information on the Boree Teak Forests, and the Deinwah Sâl Forest in the Chindwarra District. The Teak producing localities in the Boree Forests are estimated to cover 10 square miles; very few trees exceed 6 feet in girth and 30 feet is the greatest length of the log. This seems to be the maximum size which trees attain in this Forest; the 2nd Class trees are irregularly scattered over the Forest, and the number can only be ascertained by actual enumeration. Captain Pearson believes that there are between 5,000 and 10,000 trees, but remarks, that nearly all show signs of decay, and are deteriorating year by year.

This does not speak well for the soil of these hills; but it must be remembered, that Captain Pearson reports that hundreds of acres have yearly been cleared for Dhya cultivation, and that "large portions of the Forest have been thus left entirely bare." A remarkable difference would probably be observed in the character of this Forest if Dhyas and jungle fires were checked for a number of years. Captain Pearson thinks, that in order to stop the cutting and burning of the jungle, the people should be induced to remove to other villages out of the tract.

The number of 3rd Class trees is estimated at one lakh. Young trees of a girth below 18 inches are less numerous. Captain Pearson ascribes this entirely to the effects of Dhya cultivation, and thinks that 25 years ago the Forest was unharmed by either felling or Dhyas.

These results, however, are based on valuation surveys over an area of only about 5 acres. Data obtained by the survey of so small an area cannot give reliable results, though they may bring discredit upon the system of making valuation surveys. Para. 53 of the Report for 1862-63 gives figures regarding the same range of Forests.

Captain Pearson estimates, that, with care, this Forest will produce to Government from 2 to 3 lakhs of Rupees at least, within the next 10 years, and afterwards a regular revenue of 15,000 to 20,000 Rupees per annum. Much timber is lying in the Forest which it is proposed to convert into sleepers and charcoal. Care should be taken not to fell the 2nd Class trees too rapidly; though they may not improve, if left standing, they will shed seed and prevent the encroachment of jungle of a worthless description.

The description given of the Delakaree Sâl Forest, is not encouraging. This is the property of the Puchmurree Thakoor, and was leased to Government for an indefinite period in 1862. The conditions of this lease are discussed in paragraphs 28 and 39 of my letter to the Chief Commissioner, dated 7th October 1863.

Twenty square miles are covered with Sâl. 1st Class trees are found only in certain situations, where the soil is specially favorable. Captain Pearson's surveys were interrupted by illness. From the data at his disposal, he estimates 500 1st Class; 1,500 2nd Class, and 1,300 3rd Class trees in the square mile. The 4th Class trees are exceedingly numerous. The trees in this Forest are not well grown; the stems are knotty and crooked; they are not expected to yield anything but Railway sleepers.

In para. 38 of his Report, Captain Pearson urges that the Aheree Teak Forest should be explored during the coming season in a methodical way. Valuation surveys should be made, and a map prepared, exhibiting the geographical features of this important Teak Forest.

The necessity of basing the description of any Forest, on valuation surveys made with care should be impressed on all Forest Officers in the Central Provinces.

II. *Demarcation of Reserved Government Forests.*—Much progress has not been made in this work; of the two Assistant Conservators, one was employed in superintending the work of cutting sleepers in Beejoragogurh, the other in felling and girdling trees for the P. W. Department in the Mundlah Forest. Two additional Assistants joined their appointments at the close of the year. Thus the Conservator only was available for this work; and as he did not return from his deputation into Berar until 14th February, and was taken ill in March, a short time only was available. The greater part of this was devoted to the Reserves proposed to be set apart in the Baitool District, and the results of his labors are given in Appendix C. He reports that he has made application to the Revenue Settlement Officer for nine blocks of Forest, measuring in the aggregate above 200 square miles. The Forest here is interspersed with numerous villages, and a large proportion is worthless jungle, on arid and poor soil. Of the whole area, only about 40 square miles are expected eventually to turn out really valuable Forest. Captain Pearson reports, that the valuable parts of these Forests are so situated, that it would be waste of money to form any large and symmetrical Forests, and that our exertions should be directed to the preservation of small, irregular, and unconnected pieces of jungle. He states, that all the really well grown young Teak trees are found either in the deep long winding ravines, or scattered along the sides of the larger streams, and smaller water courses.

Under these circumstances, the Conservator of Forests has made a provisional selection of the Forest tracts enumerated above. Within the limits of the Provisional Reserves, the Special Reserves are hereafter to be formed. He further reports having requested the Revenue Settlement Officer to define the village areas within the Provisional Reserves, which are to be made over to the villagers in proprietory right, and to arrange, that an Officer of the Settlement Department, in company with one of the Forest Department, should mark off the village Forests within the tracts provisionally reserved.

He proposes, that round the general boundaries of the provisional Forest Reserves, marks should be put up at half a mile or a mile apart; that a list of these tracts be published as not liable to sale under the Waste Land Sale Rules, and that the sole management of these Provisional Reserves, in regard to revenue, be made over to the Forest Department. He thinks that a commencement might be made with 18 or 20 really good patches of timber, each containing from 2,000 to 10,000 trees, and that every effort be directed to keep fires out of them, although the increase of grass and scrub jungle will, at first, have the effect of increasing the danger from tigers, which are already very troublesome in this district. He urgently advocates that we should proceed carefully and feel our way as we go on.

Captain Pearson's plan, as explained in this Report, is to proceed gradually with the final establishment of these Reserved tracts, and, at first, merely to demarcate Provisional Reserves, so as to assert the rights of Government, and to prevent their being sold as waste lands; leaving the other work to be done gradually in districts of limited extent.

This mode of procedure is in accordance with what has, I believe, been agreed upon in this matter, it is the course indicated in para. 38 of my Report, dated the 7th October 1863, and I believe that it will be found the correct course to pursue in most parts of the Central Provinces. The designation "Provisional Reserves" proposed for these Forests by Captain Pearson, appears appropriate. This plan will enable the Conservator, within a reasonable time, to obtain the control of those Forest lands out of which the proper Reserves will, afterwards, be separated.

The question arises, whether the Forest Rules, as proposed for the Central Provinces, can be applied to those Provisional Reserves. In some instances, it may be expedient to leave the Provisional Reserves under the operation of the general rules, in others they might, by the issue of the Proclamation provided in Rule VII., be placed on the footing of Reserved Forests, and in this Proclamation, the operation of certain of the rules might be suspended. Some of the Provisional Reserves might at once come under the full operation of the rules.

The appointment of a Subordinate Forest Officer in charge of each Provisional Reserve appears desirable. Without a man on the spot, who represents the Forest Department, and can be held responsible for the maintenance of the boundaries and the observation of those rules that may be established, I fear the boundaries will be lost sight of, and the rules in these Provisional Reserves will become a dead letter.

In his Report, Captain Pearson suggests the following works for 1864-65, with regard to the demarcation of Reserved Forests:—

Beejoragogurh.—A map of the tract proposed to be reserved has been forwarded to the Political Agent at Nagode. (Para. 19.)

Mundlah.—Provisional Reserves should be roughly demarcated.

Chindwara.—In communication with the Settlement Officer, an attempt should be made to induce the villagers to move out of the Boree Forest, by giving them compensation. A map of the Forest should be made.

If the arrangement proposed by the Chief Commissioner, to establish six divisions in the Central Provinces, and to appoint an Officer to each, is carried out, then the work of demarcating Provisional Reserves might progress simultaneously in all divisions; this, doubtless, is the most important work at present in the Central Provinces.

In para. 55 of the Report, the Conservator speaks of the necessity of preparing maps of the Reserved Forests on a sufficiently large scale; he recommends four inches to the mile, which will, in many instances, be found suitable. Where Reserves are demarcated provisionally, a smaller scale may suffice. It is essential that a map of every Reserve should be deposited in the Office of the Deputy Commissioner of the District.

The difficulty in this matter is the want of topographical surveys of the greater part of the country.

III. *Protection of Forests and works for their improvement.*—The Conservator praises the obedience of the people with regard to the protection of young Teak. The tree is springing up in millions everywhere, and in many places is thriving amazingly. Captain Pearson adds (para. 12) that it would be a graceful recognition of this obedience on the part of Government, if all timber within the Forests given to villages in proprietory right, were at once released from the restrictions of the Forest Rules. I fully agree on this point, and feel assured, that Forest conservancy can be enforced more efficiently in the remainder of the Forests if village Forests are released from all restrictions. A letter from the Settlement Officer, Nagpoor, in Appendix E, however shows, that the inhabitants do not everywhere respect the Forest Rules, for he found that many saplings of Teak and Tinus had been recently cut.

It is also reported, that Dhya cultivation has decreased in several Districts, and that in the Boree Forests, where Dhyas are cut in Teak localities, the saplings are carefully protected, but it is apparent from the reports, that these hill clearings still do extensive damage to the Forests.

In Lieutenant Freeborn's Report of the proceedings in the Mundlah Forest, (Appendix A) it is suggested, that when the cultivators get leave to clear a piece of Forest land for growing corn, they should collect and stack in a safe place all the big logs for Government. Lieutenant Freeborn adds, that at present they burn the wood, the ashes of which are good for the soil.

An attempt was made to enforce this rule in Burmah, but it could not be maintained as the cultivators had no means for moving heavy timber.

Captain Pearson's instructions (para. 25) regarding the thinning of young Teak trees, where springing up in abundance, and where they have attained sufficient size, appear suitable, provided the work is done under strict supervision of Forest Officers.

IV. *Selection of the trees to be felled and yield of the Forest.*—The work in the Beejoragogurh Forests is described in Appendix B. The results are not satisfactory. In the Report for 1862-63 it was stated, that 33,200 trees had been felled, and that these should furnish 1,50,000 sleepers.

In the half-yearly Report on the progress of the Jubbulpoor line, dated 31st December 1863, the Chief Engineer and the Consulting Engineer to Government, stated that, after inspecting the state of the works, not more than 75,000 sleepers fit for use were expected, and now Lieutenant Douglas gives a much smaller number as the probable out-turn. I understand from his Report that he does not expect more than the following :—

Beejoragogurh Forests—sleepers at 4 cubic feet, about	20,000
Long logs, say at 50 cubic feet, about	800
Jubbulpoor Forests—sleepers at 4 cubic feet, about	4,000

This would, at the outside, be 1,36,000 cubic feet.

The following causes are assigned for this unfavourable result—

1. A large proportion of the trees were hollow, and part of the wood was attacked with dry-rot.
2. A portion of the felled trees was destroyed by jungle fires and many were injured.
3. A large number of the trees felled were undersized.

To these Captain deBourbel adds the inexperience of the Forest Department; the ignorance of the workmen in selecting the trees, and in converting the timbers into sleepers; and the unseasoned condition of the wood when cut up.

In September 1863 Captain Pearson suggested, that the work of preparing the sleepers should be transferred to the Railway Company. The Government of India, under the supposition, that the timber would be more carefully economized under departmental agency, proposed that the work should be continued under the supervision of Forest Officers.

The present Report shows that the original estimate was based on insufficient data. It also proves the necessity of arranging a methodical working plan, instead of entrusting the felling of trees to subordinates. The amount of timber which is now available for the Railway, might have been obtained by felling a much smaller number of trees, and thus, doing less injury to the Forest than has been committed.

The expenditure on account of the work in the Beejoragogurh Forests has been, up to 30th April 1864, Rs. 24,555. This does not include the pay of the Assistant Conservator and fixed Forest Establishment.

The following remarks on the subject of arranging timber operations in the Forest may be found useful :—

Seasoning the timber.—Whatever may be the objections to seasoning the timber by girdling, it is certain that trees dry more rapidly and uniformly if left standing, exposed to a free current of air after killing. I would, therefore, suggest that, as soon as it may be decided to commence operations in the Delakaree, Mundlah, and Jonk River Sâl Forests and in the Teak Forests of Aheree, a number of trees may be killed by girdling with the least possible delay. In Sâl Forests, where insects are troublesome, the trees should be felled without girdling.

Selection of the trees to be felled.—I beg to urge strongly, for the sake of conservancy, that the whole of the large trees be not felled or girdled at once, and that the selection of the trees may be made by competent Officers, and not by subordinates. It seems to be an opinion accepted by many Officers connected with the Forests in India, that the interests of conservancy are sufficiently protected if the trees of the smaller classes are spared, and that the whole of the mature trees in any Forest tract may be felled at once, without endangering the maintenance of a Forest. This opinion, however, is neither borne out by theory nor by experience.

The rules of selection, or the system according to which the felling operations should be regulated, require to be determined in every instance by a careful examination and survey of the Forest. But as this requires more time than could, at the outset, be afforded, I would suggest, as a preliminary arrangement, that in those Forest tracts where timber is to be felled, one-fourth only of the 1st Class trees be girdled, the largest and best trees being invariably selected for girdling.

Arrangements for the cutting and stacking of sleepers.—Theoretically, the best plan would be to sell the girdled trees to the Railway Company or their Agents, and to *let them do the work* of preparation and *transport*. But I doubt whether such arrangements could, under all circumstances, be made. In the Delakaree Forests, the plan might answer, as the locality is comparatively easy of access, and the distance from the line not great. For some of the more distant localities, a sleeper cutting establishment may have to be organized by the Forest Department. Whenever this may be the case, I beg to urge the necessity of engaging competent persons as foremen.

In the Mundlah District, Lieutenant Freeborn was engaged in making preparations to furnish the Public Works Department with 7,000 Teak logs, indented for at Jubbulpoor. Of these timbers, 5,000 logs are to be 12 feet in length and 10 × 6 ; and 2,000, 23 long and 12 × 10.

Lieutenant Freeborn collected much timber previously felled, which had lapsed to Government (upwards of 2,900 logs), and he marked and girdled 1,951 trees. It appears from his Report, (Appendix A), that he marked and girdled all Teak trees of sufficient size to yield the timber required, and he spent several months in this work. This result confirms the account given of the Teak resources of the Mundlah Forests by Captain Pearson, in para. 45 of his Report for 1862-63.

If it is intended that the Mundlah Teak localities are to be managed with a view to restore them to their former state of timber production, it may be regretted that the whole of the larger trees remaining were killed.

Captain Pearson (para. 23) urges the making of a road from Toplah to Mundlah, to open out the extensive Sâl Forest north of the Rajahdhar range.

If the additional Officers applied for by the Chief Commissioner are sanctioned, one Assistant Conservator will be placed in charge of the Mundlah and Seonee District, and then a regular working plan of these Sâl Forests should be established, based on a systematic series of valuation surveys. The District is feverish, and a healthy locality must be selected with care, to enable the establishment to be stationed in the Forest during the greater part of the year. If the carpenter bees are not destructive, I would advise the girdling of the trees one year before felling.

In para. 40, Captain Pearson estimates the cost of sleepers from these Forests at Jubbulpoor as follows :—

Cost of preparation, including superintendence	Rs.	2	0	0
Carriage, not less than	„	3	0	0
Total, not less than	„	5	0	0

In para. 21 of his Memorandum on Railway sleepers and Railway fencing in the Central Provinces, dated 28th November 1863, he estimates the cost of Sâl sleepers from the Mundlah Forests at Jubbulpoor, at Rs. 5-8 per piece, including cost of superintendence and the Government charge or seignorage.

These two estimates agree, and considering that this Forest is the chief local source of supply, if conservancy is to be strictly carried out, an establishment for working these Forests

in a systematic manner should be organized. If not supplied from this source, the sleepers must either be brought from Nepal and the N. W. Provinces, or from Bombay, (Teak or creosoted Fir.)

In para. 41, the Conservator recommends great caution with regard to the suggestion made in para. 4 of P. W. letter No. 1153, dated 11th March 1864, that some of the Sâl Forests, on tributaries of the Mahanuddee River, in the Raipoor District, might be leased from the Zemindars.

In his Memorandum, dated 28th November 1863, Captain Pearson estimated the cost of Sâl sleepers from these Forests, including all charges paid to the Zemindars, at Rs. 5-8 per sleeper at Nagpoor; *viz.*, cost of sleepers in the Forests, Rs. 1-8, and carriage over 200 miles, Rs. 4, but in the Report under review, he estimates the cost in the Forests at Rs. 2, and the carriage to Nagpoor at Rs. 5—total Rs. 7, delivered at Nagpoor.

The previous estimate was concurred in by Mr. Temple, and would, if correct, warrant action being taken on a large scale. But the discrepancy between the two estimates, shows the necessity of the caution urged by the Conservator of Forests; and it may be judicious to test, practically, in the first instance, whether the manufacture of sleepers in these Forests would be profitable, or the contrary. In this recommendation the Chief Commissioner concurs.

A similar experiment with Railway sleepers from the Ahered Teak Forests to Nagpoor is recommended. If these Forests were at the disposal of Government, there is no doubt that they would be the most important source for sleepers. Captain Pearson correctly remarks, that the distance from the line is only 150 miles, that Teak is only two-thirds the weight of Sâl, and is more durable.

In Baitool, a large quantity of old Teak logs, mostly small, have been collected from the jungle; the timber sales have been successful; 56 logs averaging 22¼ cubic feet, and 14,083 smaller logs have been sold at fair rates at depôts in the Forests. (Para. 6 of Report.)

Captain Pearson is deservedly severe in his remarks on the present system of supplying sleepers to the Railway, and expresses the hope that, as all the licenses to cut timber will expire on 31st December 1864, the present system should on no account be continued. The large Contractors sub-let the work to petty Contractors, and the result is a great waste of timber in converting it into sleepers, and the wanton felling of many trees left to rot and burn.

Under the new Rules, great improvements may be expected, provided the responsibility of granting timber contracts rests entirely with the Forest Officers.

V. *Financial Results.*—The Chief Commissioner states in para. 24 of his letter, forwarding the Report under review, that the receipts (partly estimated) amount to Rs. 1,56,754.

The statements appended to the Report show that this sum consists of the following items:—

By sale of timber	Rs.	25,652
„ duty on ditto	„	38,748
„ miscellaneous revenue	„	5,151
„ outstandings and sums realized by District Officer	„	8,437
Total Revenue actually due or realized	„	77,988
Value of timber in store, 30th April 1864	„	78,766
Total	Rs.	1,56,754

The value of the timber in store on the 30th April 1863, amounted to Rs. 20,000. The expenditure is stated at Rs. 67,707. We have thus the following results:—

Receipts during the year (partly estimated)		Rs.	77,988
Expenditure		„	67,707
Surplus		Rs.	10,281
Value of stock, 30th April 1864	78,766		
Ditto ditto 30th April 1863	20,000		
Difference		„	58,766
Total net revenue of the year		Rs.	69,047

This result is satisfactory. It may here be mentioned, that in the Budget-Estimate, the actuals for 1863-64 are stated as follows:—

Receipts	Rs.	86,269
Expenditure	„	67,881
Surplus ...	Rs.	18,388

Dated Calcutta,
March 15th, 1865.

A

REPORT

BY Dr. D. BRANDIS,

ON HIS

DEPUTATION

TO THE CENTRAL PROVINCES.

1863-64.

Dated 7th September, 1864

From—Dr. D. Brandis, *Inspector General of Forests,*

To—Secretary to Government of India, P W. Dept.

I beg to submit the result of my tour in the Central Provinces in February and March 1863. I left Calcutta on the 19th February, reached Nagpoor about the close of the month, examined, in company with Captain Pearson, several Forest tracts between Nagpoor and Seonee, and reached Allahabad on the 29th March, after spending several days in the Beejoragogurh Forests. As the remainder of the season was required for the Oudh and North West Forests, I could not then attempt more. During my visit, I submitted a Report on the Forest Accounts, on which orders were passed by the Government of India, No. 758, dated 18th May 1863. I also forwarded to the Chief Commissioner a draft of Forest Rules proposed by him, dated 11th March 1863, subsequently I had the advantage of a continued correspondence with Captain Pearson, then Conservator of Forests, on various subjects connected with the management of the Forests. I was enabled to mature my views on certain points, which were embodied in a letter to the Chief Commissioner from Nynee Tal, dated 7th October. This letter contains a draft of proposed Forest Rules and suggestions on matters of a technical character.

The Chief Commissioner discussed my different proposals, and approved of the greater part of them in a letter dated 30th October 1863. On receiving this, I wrote a letter to the Chief Commissioner, dated Benares, 16th November, suggesting that the new scale of establishment and the Forest Rules be submitted for the sanction of Government.

I intended to lay my Report before Government at once, but owing to some unfortunate delay, I did not receive a copy of it from Nagpoor until February 1864.

Meanwhile, I forwarded (15th February) an amended draft of Forest Rules to the Chief Commissioner, and, as the proposals on this subject and the revised scale of establishment have now been received, I beg to submit the correspondence quoted above, with certain other documents enumerated in the margin, which serve to illustrate several points alluded to in my letter of the 7th October 1863.

Forest Rules, dated 28th July 1862.
Draft Forest Rules, dated 28th January 1863.
Chief Commissioner's Circular regarding the reservation of waste lands, 17th February 1863.
Instructions to Settlement Officers in the Central Provinces.
Translation of the lease of the Dinwah (Delukaree) Sál Forests
Captain Pearson's Memorandum on the timber bearing tracts of the Central Provinces.

Orders have been passed on the main points discussed in my letter, and in the Chief Commissioner's reply. Several cases are now before Government for orders. I shall only enumerate a few points noted in my letter of the 7th October, regarding which orders seem to be required.

Paras. 1 to 10 give a review of previous Forest Rules and propose a new draft.

Paras. 11 to 24 treat of the management of reserved Forests. I beg to urge, 1st.—*The expediency of appointing local subordinates, resident in the Forest and responsible for the same.* 2*nd.—The necessity of clearing paths through and round Forest tracts which are to be reserved, and of keeping them clear with the view of diminishing fires*

Experience in Burmah and other parts of India has shown that this is the only safeguard against conflagration at present at our command.

3*rd.—The necessity of having a topographical survey and map of the Forests to be reserved, and of not delaying the erection of boundary pillars.* In these proposals the Chief Commissioner expressed his concurrence in paras. 39 and 42 of his letter of 30th October 1863, but they appear to be of sufficient importance to call for a special notice by the Government of India.

Paras. 25 to 27 treat of village Forests.

Para. 28 treats of Forests in possession of Zemindars, Jagheerdars, and other independent landholders.

Para. 29 treat of Forests under general rules.

Paras. 30 to 37 comprise general rules on matters of a technical character.

Paras. 38 to 49 refer to the Forests to be reserved in the different districts.

Paras. 50 and 51 refer to the working and yield of the Forests.

Paras. 52 and 53 to establishments and the financial prospect of the department in the Central Provinces.

I would suggest that this Report and correspondence annexed be printed in the Selections of the Records of the Government of India, along with Forests Report of Central Provinces for 1863-64, and my Memorandum on it. The Officiating Conservator might be requested to prepare a skeleton map of the Provinces, for convenience of reference, showing the divisions now contemplated to be formed, the principal ranges of hills, streams, and Forest tracts.

Dated 11th March, 1863.

From—Dr. D. Brandis, *Conservator of Forests, on Special Duty,*

To—Secretary to Chief Commissioner, Central Provinces, in the P. W. Dept.

With reference to letter No. 547, dated 4th February, from the Secretary to the Government of India, to my adress, I have now the honour, for the information of the Chief Commissioner, to report the result of my enquiries up to date on certain points, and to submit a few suggestions which I trust will meet with the Chief Commissioner's concurrence. My final Report I must reserve until I shall have visited, in company with Captain Pearson, certain forest tracts in the Chindwara and Bijoragogurh districts. It will not be practicable for me to return to Nagpoor after this tour. This, and the impossibility of my going to Sumbulpoor to meet Mr. Temple are disadvantages which I regret, but which, under the circumstances, are unavoidable.

2. Regarding forest accounts and the audit of forest charges, I have attached a Memorandum to this letter.

Forest accounts and audit of expenditure.

Forest Rules; demarcation of Reserved tracts.

3. Regarding the draft of new Forest Rules sent with Circular of the 28th January last, to all Commissioners, I beg to offer the following suggestions:

The tracts received by Government where no wood is to be cut, except by the Forest Department, or directly through its orders, should, I think, be demarcated as soon as practicable. Captain Pearson is of opinion, and I fully concur with him, that after settling matters connected with the work in Bijoragogurh, he should at once commence the settlement of the reserved tracts, in concert with the Deputy Commissioners and Revenue Settlement Officers of each district. And though he may not yet have been gazetted as Conservator of Forests in the Central Provinces, there seems to be no reason, considering the cause of the delay, why he should not at once extend his labours over the whole of the Central Provinces.

Location of local Forest Subordinates.

4. He might, while engaged in settling the Reserved Districts, make arrangements for the location of the local Forest Subordinates and their official relation to the District Officers.

The local Forest Subordinates lately posted to the Godavery Talooks and the Chanda District, are, I understand, at present exclusively under the orders of the District Officers, and generally I understand it to be proposed, that only the forest establishment of the reserved tracts should be under the Forest Department.

It would appear to me that the relative position of the local Forest Subordinates to the Deputy Commissioner and Conservator of Forests may advantageously be left to be arranged by these Officers in every instance according to the merits of the case, reference being open to the Chief Commissioner. But at present, I would deprecate any rule which precluded the exercise of a direct control on the part of the Conservator or his Assistants over any portion of the local forest establishment.

Revised List of Reserved Forest tracts.

5. Captain Pearson and myself are now preparing a revised list of Reserved Forest tracts, which I purpose appending to my final Report. But on this point also, I would suggest that such lists should be considered as guides in a general way only, and that the Conservator of Forests be left at liberty, in concert with the District and Settlement Officers, to fix the extent and boundaries of the Reserved Districts as circumstances may render advisable. I understand that the boundaries of each Reserved District are to be sanctioned by the Chief Commissioner. But I apprehend that some time, perhaps several years, will elapse before the boundaries can be finally laid down and sanctioned.

Existing Forest Contractors; new contracts to be given, and old ones to be extended by the Conservator only.

6. Until such time, I think some caution must be exercised in permitting the cutting of timber. Captain Pearson informs me that there are now four great contractors at work in the forests, viz.:—

1st.—Messrs. Hood, Winton, and Mills, in the Baitool Forests.

2nd.—Wasodeva in the South of Hoshungabad and Baitool.

3rd.—Lee, Watson and Aiton, in the Tooria jungles, Seonee.

4th.—Ramasawmy Modeliar, in the Chindwara jungles on the Pench.

The permission given to these contractors is perhaps somewhat undefined; the date when the permit is to expire is not stipulated, nor is the number of trees which they are permitted to cut, fixed. But it seems to be understood, that the permission must be renewed at the end of a year; that no tree in girth under 3 feet may be felled, and that trees must be felled close to the ground.

Existing contracts must, of course, run out, and if the work of these contractors is found to be not too wasteful, and the requirements of the railways demand it, some of these contracts might be extended to another year. But the making of new contracts and the extension of old ones must entirely remain with the Conservator of Forests. The District Officers should only be at liberty to great small quantities of timber to the villagers for local consumption. I consider this a most important provision, and one particularly necessary until the boundaries of the Reserved Forest tracts shall have been finally settled.

District Officers not to grant Teak or Sheshum without the sanction of the Conservator.

7. Indeed I think that until the Reserved Forests are finally settled, Teak and Sheshum should not be given without the written sanction of the Conservator of Forests, or such Assistants as may be specially authorized. Nothing short of this will be found to ensure the preservation of Teak localities, which ultimately it may be found necessary to include in Reserved Forest tracts. And with reference to this I would suggest that Rules IV and VIII be modified. I would also suggest that District Officers should, for the present, transmit to the Conservator a monthly statement of all timber granted by them in their District, whether with or without payment.

No Dhya to be formed where any of the interdicted trees are growing.

8. The rule (VI) which relates to Dhya cultivation will, I fear, not efficiently prevent the damage done by this destructive practice. Of course I understand that in Reserved Forest tracts no Dhya cultivation will be permitted without the special sanction of the Forest Officers. But as said before, until these reserved tracts are finally settled, some caution will have to be exercised for the forests in general. I would suggest that the following clause be added to Rule VI. "No Dhya to be cut in tracts reserved under Rule II, and no Dhya to be cut in places where any of the trees interdicted are growing" without the express permission of the District Officers.

Dated 7th October, 1863.

From—Dr. D. Brandis, *Conservator of Forests, on Special Duty,*

To—Secretary to Chief Commissioner, Central Provinces, in the P. W. Dept.

In continuation of my communication, dated 11th March, I have now the honour, for the information of the Chief Commissioner, to submit my final Report.

On many matters of a practical nature, as far as they appeared to be within the competency of the Conservator of Forests, I have, in compliance with my letter of instructions, dated 4th February, agreed with Captain Pearson on the course to be pursued by him; a short notice, therefore, will here be sufficient, the main points left open for discussion now, appear to be the Forest Rules and the principles which should guide Forest Officers in the selection and management of the Reserved Forest tracts. With reference to these points, it may be useful shortly to review the Forest Rules as they stood formerly in the different portions of the Central Provinces. My information may, in some respects, be incomplete, and I would solicit such corrections as may occur to the Chief Commissioner.

Review of old Forest Rules.

2. In the Saugor and Nerbudda territories a set of Forest Rules were sanctioned, and a proclamation ordered to be promulgated by the Government of the North West Provinces in August 1861.

The Notification declared that "the British Government alone possesses full and clear right to all the woods and forests where timber is growing, for the management of these woods and forests a Superintendent has been appointed, but this Officer will not exercise any supervision over any jungle situated in Oobaree, or other estates in which the Government may have specifically ceded to a land-holder or other person, its rights to the timber for any portion of time."

This Notification further introduces the distinction between forests set apart for plantations, where no stick is to be cut without permission, and Government Forests generally. In these latter only Teak and Sheshum (Dalbergia sp.) are prohibited to be cut absolutely except with the Superintendent's permission.

For the cutting of larger pieces, or for the felling of any timber for the purposes of trade, permission must be obtained in every instance, and duty will be charged according to certain rates.

In the rules appended to this Notification, the rates of duty are fixed, a higher rate being laid on the following kinds which are defined as timber, the others being classed as jungle-wood :—

Those marked * not to be cut for ballies. Ditto † ditto for firewood.

1.—Teak*		
2.—Sheshum*	... ...	(Dalbergia sp.)
3.—Unjun*	... .	(Hardwickia binata)
4.—Beejasal*	... ...	(Pterocarpus Marsupium)
5.—Saj*	... ...	(Pentaptera glabra)
6.—Toon*	... ...	(Cedrela Toona)
7.—Sal†	.. ..	(Shorea robusta)
8.—Dhyan Dhingun†	... ...	(Cordia Macleodii)
9.—Sissoo*	... ...	(Dalbergia Sissoo)
10.—Dhamin*	... ...	(Grewia)
11.—Hurdoo†	... .	(Nauclea cordifolia)
12.—Kowah†	... ...	(Pentaptera Arjuna)
13.—Tinsa*	... .	(Dalbergia Oojeinensis)
14.—Guwaree†	... ...	(Acacia elata)

The cutting of poles (Ballies) of nine out of these 14 reserved kinds, is absolutely prohibited, also of Mowah (Bassia) which, however, is not included among the reserved kinds.

The cutting of firewood of five of the above 14 kinds, and of Tendoo (Diospyros Melanoxylon), not included in the list, is also prohibited.

Dowrah (Conocarpus latifolia) is specially exempted from the Forest Rules.

A considerable portion of the Forest Rules is devoted to the arrangement under which contractors may enter the Forests to cut timber for export. The main points are the following :—

Contractors to bind themselves by written agreement to submit to and abide by the Rules.

The time when the timber will be removed from the forest to be stipulated, but never to exceed one year: logs to be confiscated three months after expiration of the time fixed.

The ways and outlets by which the timber will be removed, and the depôts at which it will be collected, to be stipulated.

An advance to be lodged by the Contractor to cover the barking and marking of the trees to be felled.

No tree to be felled, unless first marked by a man of the Forest Department.

Wood cut contrary to orders to be confiscated and removed at the Contractor's expense, or fine to be paid.

There are also certain rules regulating the supply of timber to Public Departments.

And in the Notification it is said that the cutting and removal of timber without authority will be prosecuted as theft. It would appear that these rules were never enforced to their full extent, but that only extracts of the same were published.

After the Saugor and Nerdudda Territories had been incorporated with the Central Provinces, a new set of Rules was framed by Captain Pearson in April 1862. The adoption of these was sanctioned by the Chief Commissioner in July 1862 for the Jubbulpoor and Saugor Divisions.

These Rules differ from those sanctioned by the Government, North Western Provinces, in several important points. Cultivators are permitted, for their own use in house or field, to cut one cart load of whatever timber they wish, except Teak and Sheshum; they are not restricted to poles, 6 inches in thickness.

Duty is levied on 17 kinds of timber only. This list includes Dowrah, all the rest is free to every body.

In the place of the Rule requiring the marking of all trees before felled, a minimum size (3 feet in girth at 3 from the ground) is fixed.

The cutting of Dhyas is placed under the following restrictions :—

1st.—No Dhya is to be cut in any place where it has not been cut within the last 12 years.

2nd.—Nor where any good trees exist.

3rd.—Nor where Teak flourishes.

4th.—Timber trees and Teak trees generally must be spared in cutting the Dhyas.

To these Rules a penalty clause attaches, *viz.*, that a breach of the same is punishable by a Magistrate under the regulations, as misdemeanour or disobedience of orders on the part of land-holders.

Independently of these Rules, it would appear that in the Dongratal Forests, in the Seonee District, the prohibition to cut Teak without permission has been enforced for the last 12 years.

In the Nagpoor Province, I understand it to have been considered as a standing rule, that Teak, Saj, Sheshum, was not to be cut without the permission of the District Officers. And since 1861, certain rules, framed by Captain Stewart, Explorer of Forests, would appear to have been in force.

Captain Stewart's rules refer to khalsa lands only, seven kinds, *viz.*, Teak, Sal, Sheshum, Saj, Beejasal, Hurdoo, and Toon, are prohibited to be felled without permission.

But of these kinds, Teak excepted, as many as ten trees will be given to ryots free of duty *bonâ fide* for their own especial use.

No Dhyas are to be formed in lands, on which large timber of the interdicted kinds exists. None of the interdicted kinds of trees shall be felled at a smaller size than 3 feet in girth, and Teak, Saj, Sal, Sheshum only at 3½′ girth.

Duty will be levied—

a.—On jungle wood at 4 annas per log, Rs. 1-8 per score on Bullies, } if cut for purposes of trade.

b.—On the interdicted kinds per log 18′ long and 4½′ in girth.
Teak, Saj, Sal, Rs. 1-8.
On other kinds, Re. 1-0.

c.—Railway sleepers of whatever timber, 4 annas per sleeper.

In July 1862, some correspondence passed between the Secretary to the Chief Commissioner, and the Commissioner, Nagpoor Division, regarding a modification of these rules, but it does not seem necessary here to enter into the detail of this correspondence.

3. On the 28th January 1863, a Circular was sent to all Commissioners of Divisions on the subject of Forest Rules, with a draft of proposed Rules; the opinion of these Officers was requested.

Draft of Rules, dated 28th January 1863.

The principal points of this Circular, and the Rules appended to it, I understand to be as follows:—

1st.—The Forest Rules have failed with regard to some of the purposes for which they were intended, partly because they were not thoroughly understood by the District Officers, partly through a entire misconception of their intention by the people in general.

2nd.—The objects to be kept in view in forest conservancy should be as follows:—

To ensure a liberal supply of timber for agricultural and other purposes, free of duty, to the poorer classes.

To preserve from wanton felling and indiscriminate waste the better sorts of timber trees.

The timber so preserved to be accessible to all classes on payment of a moderate tax, within certain reasonable restrictions.

3rd.—The general restriction on felling timber in the Central Provinces is withdrawn, and permission is given to fell all trees subject to the following exceptions and limitations:—

(a.) No wood to be cut in the tracts reserved by Government, except by the Forest Department, or directly through its orders.

(b.) Teak, Sheshum, Sal, Saj, Kowah, Beejasal, never to be felled without permission; Unjun Rohneah, and Tinus, to be prohibited in particular Districts only; permission to be given by the Civil Officers (Tehsildar or Deputy Commissioner) who will levy a tax on Teak and Sheshum under all circumstances, and, on the other kinds, whenever more than 10 trees are required.

Rates of duty for Teak and Sheshum, logs 18′ long 4½′ girth, Rs. 2. Below this size, Rs. 1-8. For other trees, half this rate.

These ten trees to be given to agriculturists for their own use, free of duty.

(c.) No tree of the above-named sorts to be felled, which is under 4 feet in girth at 3 feet from the ground, except Sheshum, which may be felled at half the above girth, and all trees to be felled within one cubit of the ground to avoid waste. The penalty for the breach of this rule will be double duty with liability to forfeit the wood, if the practice be persevered in.

In places where the Teak is of inferior description, District Officers in correspondence with the Forest Department, may use their discretion in allowing it to be cut to a certain extent, for which duty will be charged at the rate of Rs. 2 per cart load, as the usual means of supplying the want of Teak, the Forest Department, in conjunction with the Civil Officers, to arrange to sell annually in each District a supply of such wood from the prunings of the young Teak.

(d.) Dhya cultivators are directed not to cut or burn the above-named trees.

NOTE.—From paragraph 10 of the Circular, I understand the restrictions noted under *a*, *b*, *c*, *d*, to refer to all lands with the exception of those which may be sold under the Waste Land Sale Rules.

A clause is to be added to the administration paper of the new settlement to the effect that the proprietary right is conferred subject to any rule that may be made in the Forest Department.

4th.—The reserved tracts are to remain under the Forest Department, but the enforcement of the Forest Rules generally will be placed under the District Officers. A portion of the Forest Establishment will be placed under the District Officers. In the reserved tracts the establishments will remain directly under the Forest Department.

5th.—Tours of inspection are to be made by the Forest Department to see that the rules are carried out. Breaches of the same to be reported by them, either to the District Officers or to the Commissioner of the Division, or, in extreme cases, if necessary, to the Chief Commissioner.

6th.—All sums realized from the Forest Revenues to be credited in the treasuries to the Forest Fund. All charges on account of the Forests to be met by the Superintendent of Forests from the Forest Budget assignment, whether incurred by the Officers of the Forest Department or by the District Officers. Monthly Statements of Receipts and Disbursements on account of the forests to be forwarded to the Superintendent of Forests, and those items to be included in his accounts.

As an immediate measure, District Officers are directed to cause it to be made known thoroughly to all classes in their respective districts that, with the exception of the nine interdicted kinds, all people are at liberty at once to fell and take away what timber they require from the forests, in all places except in the reserved tracts, and a list of the tracts proposed to be reserved is appended to the Circular. The number of these tracts is ten, and they are situated in five districts.

Objections to these Rules.

4. I beg now with reference to my letter of the 11th March, shortly to recapitulate the points in these Rules, to which I think I must raise objections :—

1st.—The leading idea of the rules, *viz.*, the setting apart of certain Reserved Forest tracts to be under the exclusive management of the Forest Officers, is an excellent one, but I fear the tracts proposed to be reserved are not sufficiently numerous or extensive.

2nd.—District Officers should, I think, not have the power to give permission to contractors to fell timber, nor should they, I believe, be authorized to grant Teak or sheshum, nor should they allow the cutting of small Teak. All other timber granted by them should be reported once a month to the Conservator of Forests.

3rd.—The injurious effects of Dhya cultivation are not, I believe, sufficiently guarded against.

4th.—I would deprecate any rule which would preclude the exercise of a direct control on the part of the Conservator over any portion of the Local Forest Establishment.

Draft of Rules now proposed.

5. I have in the following remarks endeavoured to sketch a Draft of Rules, the leading points of which might, I think, advantageously be adopted, though the wording and framing in detail may require improvement and modification in many respects. It may possibly interest the Chief Commissioner to peruse a draft prepared jointly by Captain Pearson and myself in March last, and which I enclose in original (A). It will be seen that since that time I have altered my views on several points.

I understand that there will be the following classes of forest land in the Central Provinces :—

(a.) The Reserved Forests, or the Forest Domains of the State.

(b.) The forests made over, or which will be made over (under the new settlement) to villages.

(c.) The forests made over, or which will be made over to grantees under the Waste Land Sale Rules.

(d.) The forests acknowledged to be held in proprietary right by Zemindars, Jagheerdars, and other land-holders.

(e.) Forest lands not included in any of the above classes.

It has already been ruled by the Chief Commissioner that the restrictions regarding certain kinds of interdicted trees shall apply, not only to the Reserved Forest lands and those included under class *e*, but also to those lands in which proprietary rights may, under the new settlement be conferred (class *b* and partly class *d*), and that generally all proprietary rights to be given under the new settlement, shall be made subject to any rules that may be made in the Forest Department. It will hereafter be shown that under certain circumstances it may be desirable to exempt village forests from the operation of these rules.

6. The Forest Rules therefore should apply to all forests over the management of which the Government has any control, and I would suggest that this be expressed in an introductory clause.

Introductory clauses.

" *Rule I.*—The following rules are published for the administration of the Government " Reserved Forests in the Central Provinces, and for the management of " forests generally on all such lands on which Government has not ceded " the right in timber and forest produce. It shall be lawful for the Chief " Commissioner, subject to confirmation by the Government of India, to " exempt from these rules, forest lands made over to villages or indivi- " duals at the time of settlement, and other forest lands in special cases."

The next clause should, I believe, name the Officers entrusted with the administration of the Forests.

" *Rule II.*—The Officers appointed for the administration of the forests are—

" 1st.—The Conservator of Forests.
" 2nd.—His Assistants.
" 3rd.—The Subordinate Forest Officers, *viz.* :—
" Darogahs, Jemadars, Duffadars, Forest Watchers, and Peons."

It will also be the duty of all Police Officers to watch over the observance of these rules, and to afford every assistance to the Forest Officers in the exercise of their duties.

The Chief Commissioner may appoint any Deputy Commissioner, Tehsildar, or other District Officer, to have charge of certain forest tracts, but such Officers will, in all forest matters, be subject to the control of the Conservator of Forests.

7. In the third clause I propose defining the character of the Reserved Forests. Perhaps this may be unnecessary, for the fact of their being set apart and demarcated as a Domain of the State ought to suffice to make it generally understood that the same laws apply to the proprietary right of the State in Forest Land, as to that of any individual, I however give it, so as to guard against all misconception on this head, for I have heard persons who ought to be well informed, express opinions on the rights of Government in these reserved tracts, which I consider would render the conservancy of the forests on the same, very difficult.

Reserved Forests.

" *Rule III.*—Certain tracts of forest land or waste, will be reserved as the exclusive pro- " perty of the State. Such waste or forest lands will be termed Govern- " ment Reserved Forests. Unauthorized felling, cutting, marking, kill- " ing, or injuring of trees, shrubs, or bamboos, or the collection of " mowah, grass, raul or other forest produce within the limits of the " Government Reserved Forests, or any act which violates the rights " of the State, as the proprietor of these forests lands will be punished " under the provisions of the Penal Code. Dhya cultivation, the grazing " of cattle, and interference of any kind with the ground or its products, " without the special permission of the Officers in charge of the Govern- " ment Reserved Forests, is prohibited. The right of using existing " roads, through the Government Reserved Forests, will be free if com- " patible with the conservancy of the forest. But the Conservator of " Forests, with the sanction of the Chief Commissioner, shall be at " liberty to close any existing roads through the forests whenever he " may deem it requisite to do so."

The following rule gives rise to the discussion, how far, without special legislation, the provisions of the following sections of the Penal Code, Nos. 426, 427, and 435, against committing mischief by fire, may be considered as applicable to people setting fire to trees, branches, or grass, for the purposes of agriculture or grazing.

On Government Reserved Forest lands of course such acts can be prohibited by the proprietor, and that part of the rule which warns people not to do so, is, I believe, unobjectionable, though it may perhaps be considered unnecessary; but the question is, can we with propriety extend this warning to forests, the property of private parties, and to forests which though not private property, have not been included in the limits of a Government Reserved Forest. If it could be done it would compel Dhya cultivators and cattle-keepers to use the greatest precaution in setting fire to grass or jungle which would then become a most laborious operation. But it would tend much to diminish these jungle fires which at present are the ruin of vast extents of forest, and probably constitute the principal difficulty to be overcome in attempting their improvement. In forests, the property of private parties, we can of course not interdict fires. The proprietors must, however, if they set fire to the grass on their own estates, take precautions that the flames do not spread to the Government Reserved Forests.

In forests under the general control of Government, the matter may at present be left to the District Officers.

" *Rule IV.*—Within the limits of a Government Reserved Forest, it is prohibited to light " fires without permission, to burn charcoal, or to commit any act which " may cause a conflagration in the said forest, and persons who light fires

" in the neighbourhood of any Government Reserved Forest, or who
" commit any act that may cause conflagration, are warned that they
" must take proper precautions against the spreading of the fire."

" Regarding the burning of grass and jungle on lands not included in any
" private estate, or in any Government Forest, it shall be lawful for the
" Deputy Commissioner of the District, subject to confirmation by the
" Commissioner, make such rules as he may deem requisite for the
" prevention of damage to the forests under the control of Government.
" Any one who offends against or disregards this rule, renders himself
" liable to be punished under the Penal Code."

The following provision will also, I believe, be necessary at least until matters are generally understood :—

" *Rule V.*—In the Government Forest no land is to be sold, no lease of land or forest is
" to be given, without the sanction, in every instance, of the Govern-
" ment of India."

Rule IV details the general duties of the Officers in charge of Government Forests.

" *Rule VI.*—There will be a Subordinate Forest Officer in charge of every Government
" Reserved Forest. He must live within or close to the forest. He will
" be expected to thoroughly acquainted with every part of the forest,
" and with whatever happens therein. In cases of unauthorized felling,
" or other breach of the Forest Rules, it will be his duty to report the
" occurrence immediately. It will further be his duty to prevent, by all
" means in his power, the continuance or repetition of the acts constitu-
" ting the breach. He will seize axes, other tools, cattle and carts em-
" ployed in the forests in such acts, and he will take possession of all
" wood or other forest produce, unlawfully cut or removed, which he
" may find in the forests. Provided that unless specially authorized,
" he will abstain from committing any act not necessary for the defence
" of the property entrusted to his charge. He will be held responsible
" that no trees but those selected by the Conservator or his Assistants
" are felled."

The next rule refers to the demarcation of Government Forests. There may be some difficulty regarding villages situated within lands which must be reserved as Government Forests, but I think the difficulty can be met so that the existence of such villages need not prevent the demarcation of any Government Reserved Forest, though they may on all sides be surrounded by Government Reserved Forests. In the case of shifting villages other arrangements of a temporary nature may be made by the Conservator of Forests in concert with the Deputy Commissioner, the object of these temporary arrangements merely to be to afford them time either to take to permanent cultivation, or to select other sites outside the Reserved Forests. The limits of every Government Forest will be determined, subject to the confirmation of the Government of India.

" *Rule VII.*—The boundaries of each Government Reserved Forest will be marked off by
" masonry pillars, boundary stones, or such other boundary marks as the
" Chief Commissioner may direct. Where the boundary is not a high
" road, the bed of a river, or another line easily traced, the pillars must
" be at each angle and on straight lines ; they must not be more than one
" thousand yards apart. A notice must be issued and published in
" the six nearest villages within a month of the demarcation of the forest,
" stating, in a general way, the boundaries of the forest, and warning
" against trespass, theft, or mischief. It shall ordinarily be the duty of
" the Deputy Commissioner to issue this proclamation, and a copy of it
" with a descriptive statement of the boundaries of each Government
" Reserved Forest, with a map, showing its situation, is to be deposited
" in the Office of the Deputy Commissioner of the District."

" The officer in charge of a Government Forest, or any part of a Government
" Reserved Forest, must once a month go along the whole of his boundary
" lines, and state in his report the state of the boundary line and boundary
" marks; where there is no natural boundary line, a path, at least 6 feet
" wide, must be cleared through the jungle along the whole of the boun-
" dary line."

" It is the duty of the officer in charge of a Government Forest District to
" report immediately every encroachment of the boundaries of his forest."

" Should villages be situated so as to be surrounded on all sides by Govern-
" ment Forest, the boundaries around their lands must be demarcated
" in the same manner as the boundaries of a Government Forest, or should
" the villages be merely temporary settlements, they may be allowed to
" remain for a period not exceeding three years, under such conditions
" as the Conservator of Forests and the Deputy Commissioner of the

" District may determine under approval of the Chief Commissioner. But
" no cultivation by clearing or burning the jungle is, on any account, to
" be permitted within the boundaries of a Government Reserved Forest."

The following clause is one of great importance:—

The principle must at once be acknowledged, that without a regular working plan, based on the rate of production of timber on a given area, within a give time, no trees are to be marked for felling, and that no trees are to be felled, which were not marked by the officer responsible for the conservancy of the forests.

Whenever the timber is not felled and removed by the Forest Department and sold outside the forests, but when leases are give permitting the purchaser to remove the timber himself, the danger of timber being felled, which had not been marked, is greater, and because such leases are, in spite of the most stringent provisions, very liable to be abused, some caution appears necessary wherever they are given for longer than one year.

" *Rule VIII.*—In the Government Reserved Forests, no trees shall be felled, which have
" not been marked by the Conservator or one of his Assistants. The
" selection of the trees thus to be marked must be done according to a cer-
" tain plan laid down for every year by the Conservator of Forests. Re-
" garding the removal and the disposal by sale of the timber marked
" for felling and other forest produce, the Chief Commissioner will, from
" time to time, issue such orders as may, after hearing the Conservator
" of Forests, appear to him desirable, provided that arrangements for the
" sale of the standing timber in the forests which will bind the Govern-
" ment for a longer period than 12 months are not to be made with-
" out the sanction of the Government of India."

Rule VII A provides for the conservancy of forests, the clearance of which would be injurious to the public interest, by causing the washing away of soil from the mountain sides; the derangement of the superficial and subterranean drainage, and other changes, the protection of trees, bamboos, &c., on the banks of the streams comes under this rule; to include the guarding against changes of the climate might lead to vague disputes, " and to give Government the power of converting wastes, not the property of the State, into forest under this rule, might be viewed as too great an interference. The latter provision would, however, increase the usefulness of this rule.

" *Rule VIII A.*—Besides the Government Reserved Forests, as described in Rules III to
" VIII, it shall be lawful for the Chief Commissioner to prohibit the
" clearing of any forest land, or such a management of the same as will
" result in a deterioration of the forest, if he has reason to believe that the
" deterioration or clearance of the forest may have an injurious effect on
" the fertility of the neighbouring lands, or that it may cause the dimi-
" nution of springs, irregular inundations, the spread of shifting sands,
" or other injury to the public.

" And it shall be lawful for the Chief Commissioner to place forests, the
" protection of which is required in the public interest, under the man-
" agement of the Forest Department.

" The rule applies to all forest lands in the Province under whatever tenure
" or title of proprietorship they may be held. But before the rule is
" carried into execution in any instance, an offer shall be made to the
" proprietor to purchase from him the land in question at double the
" rate fixed for the sale of waste lands in the District."

Other forests under Government control.

8. The following Rules (X to XVII) refer to those forests over which Government retains control, without including them among the Reserved Government Forests.

If Government Forests had been set apart sufficiently extensive for all purposes, and if the boundaries had been finally demarcated, the control over other classes of forest might at once be given up. But the final demarcation of these forests will, I believe, be a work of years, and after it is completed, it may, in many instances, be found that tracts have been left out which ought to have been included, so that additions and alterations may hereafter become necessary.

These circumstances necessitate the following provisions, which in a few points only differ from the corresponding rules attached to the Circular of the 28th January. I shall merely note the points of difference after each rule.

" *Rule IX.*—In all other forests to which these rules apply, the cutting of the following
" kinds of trees is prohibited:—

1.—Teak.	5.—Kowah.	9.—Mowah.
2.—Sheshum.	6.—Beejasal.	10.—Tinus.
3.—Sal.	7.—Unjun.	
4.—Saj.	8.—Rohun.	

" All other trees and bamboos are free, but the Chief Commissioner may it
" any time add any other kinds of trees or bamboos to the above list."

NOTE.—The number of interdicted kinds in the Chief Commissioner's rules is nine. Mowah has been added here, because it is a tree valuable not only on account of its fruit but equally so on account of its timber. As a rule, villagers protect it carefully, but Captain Pearson informs me there have been instances of Mowah trees having been cut down by outsiders without authority.

These kinds are probably the most valuable of the forest trees in the Central Provinces as regards timber, still the list might advantageously be augmented by adding a number of those given in the old forest rules, *viz.*:—

Hurdoo.—*Nauclea cordifolia.*
Dahmin.—*Grewia sp.*
Tendoo.—*Diospyros sp.*
Dowrah.—*Conocarpus latifolia.*
Lendya.—*Lagerstroemia parviflora.*

Besides these, the following might be named:—

Acacia Sirissa (if actually found wild) *Acacia odoratissima, elata leucophloea*, all of which are found scattered and produce valuable timber.

And for the sake of ensuring a supply of Acacia Catechu for the manufacture of cutch or catechu, I would recommend some restriction being put on the felling of that tree (Khair). At present it would appear the cutch boilers are reduced to cutting up small trees of from 6 to 12 inches in diameter. These contain very little heart-wood, and the process consequently is more wasteful as far as the number of trees felled is concerned, than if large trees only were used.

But the objection against multiplying the number of interdicted kinds, and thereby creating in the minds of the cultivators the impression that the felling of timber generally is prohibited appears fully justified. And practically it will be much easier to enforce the rule, if the number of prohibited kinds is limited. Of the ten kinds here selected, five only are widely spread throughout the country.

1. Saj. *(Pentaptera glabra)* almost everywhere on dry hills.
2. Kowah. *(P. Arjuna)* near streams.
3. Teak. *(Tectona grandis)* over the southern, eastern, and western face of the Satpoora Range, Mundla District, Chanda, Bhundara, Godavery.
4. Sal. (Beejoragogurh, Mundla, Deinwah Valley, Sumbulpoor, Kalahundy, wilderness north of the Indrawutty river according to Dr. Jerdon.
5. Mowah. Throughout the Province, wild and cultivated.

The others are found in perfection in certain districts only, still they are met with here and there throughout the Province, and I would not recommend that the prohibition be limited to certain tracts. Tinus for instance, (Dalbergia Oojeinensis) is found in small specimens throughout the forests of the Satpoora Range, and there is no reason why it should not grow larger, if not indiscriminately cut for the helves of axes and similar purposes.

"*Rule X.*—Cultivators requiring timber of the above-named ten kinds for their own use " in house or field, but not for sale or barter, must apply to the Tehsildar " of the District, who is authorized, if he deems it advisable, to give free of " duty or price to each householder, once a year, not more than ten trees " in all, of any of these kinds, Teak or Sheshum excepted. These trees " must, in every instance, be marked by a person deputed by the Tehsildar " on purpose. Should this permission be abused for purposes of trade, " the offending parties will render themselves liable to be punished " for fraud."

"*Rule XI.*—Teak and Sheshum may only be given under the preceding rules with the " written consent, in every instance, of the Conservator of Forests or " Assistant in charge of the Forest Division."

"*Rule XII.*—Carpenters and petty traders may obtain from the Deputy Commissioner of " the District, once a year, not more than twenty-five trees of the different " kinds enumerated in Rule IX, Teak and Sheshum excepted. These " trees must be marked in the manner prescribed in Rule XI. Persons " with larger requirements must apply to the Forest Officers. On all " timber given under this rule, duty will be levied at the rates noted in " Rule XVII. But the Conservator of Forests may direct sales to be " held from time to time of timber of the interdicted kinds, in which " case no duty will be levied beyond the purchase money."

"*Rule XIII.*—No tree of the above-named ten kinds is to be felled, which is under 4 feet " in girth, measured at 6 feet from the ground, the Officers who are " authorized to grant timber under this rule, will be held responsible for " the due observance of the same. And all trees are to be felled within " one cubit of the ground to prevent waste. All timber given under

" Rules X, IX, and XII, whether on payment or gratuitously, is given
" with the reservation, that it is liable to be resumed and confiscated
" wherever found within the forest, in case of a breach of the above rules
" by the parties to whom it has been given."

" *Rule XIV.*—No Dhya is to be cut in any place where any of the ten interdicted kinds
" are growing, without the permission, in every instance, of the Deputy
" Commissioner in charge of the District."

" *Rule XV.*—Until further orders, all Deputy Commissioners will transmit to the Con-
" servator of Forests a monthly statement of all timber granted by them,
" and by their Tehsildars under these rules, and of all Dhyas permitted to
" be cut under Rule XIV. This statement must show the amount of duty
" realized on all timber thus granted."

NOTE.—These Rules X to XIII, which comprise the provisions under which timber from the ten interdicted kinds may be disposed of in forests not reserved as a domain of the State, differ but slightly from the proposed rules of the 28th January. It will be seen that 10 trees once a year will be given free of duty of all kinds, Teak and Sheshum included. The only difference with regard to the two last named kinds is that the written consent of the Conservator of Forests or the Assistant in charge of the Forest Division is requisite.

If the Revenue Settlement had been completed, and forest lands assigned to each village, there would scarcely be any necessity for this present section of the rules. The village forests, together with the timber of the not interdicted kinds in forests under general rules ought, I should say, be quite sufficient to supply all ordinary wants of the cultivators. For as mentioned above, there are many useful kinds not included in those prohibited to be cut. Under provisions like those here proposed, or those of the Rules of the 28th January, indeed under any provisions of a similar nature, it will be exceedingly difficult to ascertain and prevent unauthorized felling. It is evident, therefore, that we must not, from these Rules, expect any very great assistance towards the preservation of the more valuable kinds of timber, and it may be useful to look upon them merely as a make-shift until a sufficiently large area of Government Forest is finally marked off.

With reference to Rule X, the question may be raised whether the Tehsildar should have any discretion at all in the granting or refusing of timber. In the Chief Commissioner's Rules, this discretion is granted him, and after carefully considering both sides of the question, I think this provision should be maintained. The condition that ten trees may be given to *one householder once a year* only, will, I believe, be found unobjectionable.

The only security against parties who have received permission for felling 20 instead of 10 trees, is to have the trees granted to them marked by a responsible person. The condition and warning contained in the latter part of this Rule is, I believe, necessary.

In Rule XII the granting of larger quantities of timber than 25 trees in one year to one person is made the duty of the Forest Officers. I think this is absolutely necessary. As long as some sort of conservancy of the tracts not included among the Reserved Forests is contemplated, means must be taken to guard against the wholesale cutting down of all large trees in one District, and this can only be done by making the Forest Officers responsible for all felling operations conducted on a large scale. In Rule XI, a similar provision has been made for Teak and Sheshum. I think it is well worth while to preserve Teak in the Central Provinces, wherever it is found. It would be a great advantage for the country, if some of the old Teak Forests could be restored. In some parts Teak saplings stand so close, that regular thinning operations will have to be made on a large scale. This will yield some material in certain districts, but beyond this no felling of Teak should, I think, on any account, be permitted in those forests over which Government still retains some control. The establishment of Reserved Forests does not fully meet the question, it must necessarily be gradual, and many tracts suitable for reservation may not be discovered till after a lapse of years.

In Rule XIII, I do not think it expedient to retain the penalty clause of the Rules of the 28th January. All trees felled under this portion of the rules will be marked by a responsible person deputed by the Officer granting the timber, the latter, therefore, can be held responsible for the due observance of the minimum girth. If trees *not marked* are felled, this clearly comes under theft, and must be punished as such.

The reason for measuring trees at six feet and not three feet off the ground is, that the stem higher up is more likely to be regular than below. This practice of measuring should, I think, be generally observed.

Rule XIV refers to Dhya cultivation in those forests which are not reserved as Government Forests. I fear the corresponding clause in the Chief Commissioner's Rules, "*persons making Dhya cultivation are directed not to cut or to burn the above-named trees,*" will not prove a sufficient protection. When a Dhya is once cut before burning, it is exceedingly difficult to examine it, wherever the jungle has been dense, and after it is burnt, it is often impossible to distinguish the different kinds of trees.

Moreover, even if trees are spared in cutting a Dhya, they will certainly be killed or seriously injured by fire. It is, I believe, quite impossible for the cultivators to guard against this. If they are permitted to cut and burn the jungle where the protected kinds grow, we cannot in fairness punish them for the unavoidable consequences of such a practice. The only safe plan is, I believe, to prohibit Dhya cultivation wherever the protected trees grow, except

by special permission. This permission being entirely left to the District Officers, no hardship to the people need, I think, be apprehended.

Rule XV is, I think, essential, and in accordance with what has been settled in Rule II, regarding the relative position of District Officers in charge of forest tracts to the Conservator of Forests.

The last rules, which I beg to propose, have reference to the rates of duty to be levied on timber cut in the Forests under Government control, but not reserved, and the remainder to the mode of procedure in the case of any breaches of these rules.

"*Rule XVI.*—Until further notice, the rates of seigniorage or duty on timber will be as
"follows:—
"1st.—On timber brought down the Nerbudda river to Jubbulpoor,
"duty will be levied at the old rates as fixed in the pub-
"lished rules, dated 28th July 1862.
"2nd.—On timber at other places the rates will be as follows:—
"Railway sleepers of whatever timber, 4 annas per sleeper.
"On all logs exceeding 18 feet in length, and 4½ feet
"in girth, Rs. 2 per log.
"On all logs below that size, Rs. 1-8 per log."

Note to Rule XVI.—These are the rates proposed by the Chief Commissioner for Teak and Sheshum, half rates being fixed for the other prohibited kinds. I should say that uniform rates would be more convenient, but I do not feel competent to decide this point. But on one point I have a decided opinion, *viz.*, that the present rates are much *too low*. In the paragraph on the working of the forests, I proposed showing that they should at least be doubled.

"*Rule XVII.*—As a rule, all duty on timber is to be paid before the same leaves the forest,
"but the Conservator of Forests and the Deputy Commissioners shall
"be at liberty to make special arrangements regarding the time and
"place for levying the duty, but in no instance shall the time given for
"payment exceed one month after the date of removal of the timber
"from the forest."

"*Rule XVIII.*—The Chief Commissioner may invest the Conservator of Forests and any
"of his Assistants with the powers of a subordinate Magistrate. These
"powers to be exercised under such limitations as the Chief Commis-
"sioner may, from time to time, prescribe."

"*Rule XIX.*—All persons transgressing any of these rules, are hereby warned that they
"render themselves liable to confiscation of timber (under Rule XIII,)
"and to prosecution under the Penal Code, according to the circum-
"stances of the case."

"*Rule XX.*—It shall be lawful for any Magistrate to decide cases arising out of these
"rules, but all offences against such of the rules as refer to Govern-
"ment Reserved Forests, shall ordinarily be inquired into by Forest
"District Courts, to be held by such Magistrates and at such times
"and places as the Chief Commissioner may appoint, and it shall be
"lawful for the Chief Commissioner to lay down certain rules for the
"transaction of business at these Forest District Courts. Provided
"that these rules shall contain nothing contrary to the Indian Penal
"Code or the Code of Criminal Procedure unless authorised by a
"special Legislative Act."

"*Rule XXI.*—The Chief Commissioner may invest any subordinate Forest Officer in charge
"of a Government Forest, or of a portion of a Government Forest,
"with such of the powers of a Police Officer, as will enable him more
"efficiently to prevent breaches of these rules, to discover offenders, and
"to obtain evidence for their conviction."

General remarks regarding these rules.

10. I do not believe that the observance of all the preceding rules can be enforced without a special Legislative enactment. I refer particularly to certain provisions in Rules III, IV, VI, VIII, and XIV, also XX and XXI. No Act would, I believe, be passed specially for the Central Provinces; but should the Chief Commissioner think a special provision requisite, I would suggest an application to the Government of India for a general Legislative Act, empowering Local Governments, with the sanction of the Government of India, to establish Forest Rules with penalties attached to them; these penalties not to exceed certain limits.

Theoretically, all offences committed on Government land, may, perhaps, be amenable to the sections on trespass, theft or mischief of the Penal Code, but in the working practical difficulties may arise. I do not feel convinced that most Magistrates in the Central Provinces would apply these provisions of the Penal Code in cases where a man had cut a Dhya in Teak localities, or caused a conflagration in a Reserved Forest by setting fire to the grass jungle in the vicinity.

The way gradually to arrive at an exact knowledge of what is wanted, may be carefully to report every case of breach of these rules, or every instance of injury done to any forest

whether punished or not. The proportion of convictions and punishments will probably be small, but no breach or injury, if discovered, should be left unreported, and these reports should be carefully collected, and at the end of the year or a half year, a digest of these cases might be printed and circulated for their remarks, to such Officers as may be expected to give an independent opinion on these subjects.

I wish now to make a few remarks concerning the management of the different classes of forests noted in the 5th para. of this report.

Management of Reserved Government Forests.

11. Those forests which will be demarcated in the Sangor, Jubbulpoor, and Nagpoor Divisions, and probably some of those in the others, will require two remedies, to be gradually restored to the state of real forest with a fair rate of timber production per acre—*complete rest, that is freedom from cutting and other injury, and immunity from fires.* It will be comparatively easy to secure the first, but often exceedingly difficult to carry the second point. Yet the attempt ought to be made, and I feel assured ultimately it will succeed.

Selection of the Government Reserved Forests.

12. The principles which should guide Forest Officers in the selection may, I believe, be expressed as follows:—The first condition is, that if the forests are not intended to be preserved for climatic and general reasons, there should be a reasonable prospect of deriving in course of time a suitable revenue from them. There must, therefore, be either the facilities for export, or the prospect of local demand for timber and other forest produce.

There must further be *soil* sufficiently good to warrant the expectation of a fair rate of timber production per acre. On hills with poor soil, where the trees remain stunted, the establishment of Government Reserved Forests would give a very poor result, and should not be attempted.

The forest should further offer facilities for the transport of timber: it should be of *compact shape*, so as to simplify the arrangements for protetion and working, and of a *sufficient* size to justify independent management.

The size required in this last respect, will depend on the quality of the soil and the rate at which timber is likely to sell.

I have below given ten square miles as the probable area which one Forest Watcher could efficiently supervise. This does not exclude the possibility of having larger tracts in charge of a number of Forest Watchers. I should say that, in ordinary cases, two square miles, or 1,280 acres, might be viewed as the minimum size.

The timber production, after restoration of the forest, ought in such a tract not to be below 640 tons per annum, at 50 cubic feet per acre, and the surplus, after deducting working charges would, at surplus rates varying from Rs. 2 to 10 per 50 cubic feet, be from Rs. 1,280 to Rs. 6,400 per annum, which would allow a good margin for revenue and current conservancy charges. This yield, though on good soil, and under circumstances otherwise favourable, it ought not to be the ultimate maximum, will, in most instances, not be attained for many years to come. It is evident, that to arrive speedly at a high standard of productiveness, forest should, if possible, be selected well stocked with timber of the more valuable kinds.

Open grass lands, if there are any, need not interfere with the demarcation of the Forest. If the boundary line runs through open ground, protection against fires will be easier. Grass lands within the forest, if suitable, may in time be planted, when the revenue from the forest warrants the expense.

Villages or cultivation should, if possible, not be included; where they cannot be avoided, their lands should be demarcated within the forest. Shifting cultivation should not, on any account, be permitted within the limits of a Reserved Forest.

Immunity from prescriptive or customary rights.

13. The immunity from prescriptive or customary rights should be complete. No cutting of timber or firewood, no grazing of cattle, or collecting of grass can be allowed in the Reserved Forests. The establishment of village forests will, I understand, provide for this, and where village forests have not yet been demarcated, some other arrangement of a temporary nature may be made.

The right of way through the forest on existing paths and cart roads, cannot, except in rare instances, be commuted; such roads to which an undoubted right of way attaches, should be carefully defined, and all others closed.

There may be instances in which, for the sake of conservancy, existing roads must be temporarily closed. Rule III provides for this; but the execution of it may require a special Legislative enactment.

Boundaries.

14. Boundary marks will be different in different parts of the country. In some parts the plan of having pyramids of boulders with a small beam of Teak or Sâl let into them may be suitable, in others masonry pillars will be requisite. On straight lines these boundary marks should not be further than a quarter mile apart. At angles three pillars at less distance from each other will be necessary. Paths should be cleared from pillar to pillar, the width of these paths should not be less than five yards.

Forest Watchers or Patrols.

15. In Reserved Government Forests there must be one Forest Watcher for each Reserved Forest, or for such a part of the same as he can efficiently manage. Perhaps, 10 square miles might be entrusted to one man; these men should be well paid. Three grades might be established for the Central Provinces, so as to give some prospect of promotion. A house should be built for them on a healthy spot in or near the forest, upper-storied, of substantial materials. They must understand that they are strictly responsible for the forest in their charge, and all that is on it. They should not leave the forest without special permission, urgent cases excepted, where the detection or prosecution of offenders, or otherwise the safety of the forest is concerned, and while absent, it should be their duty to leave a substitute in their place. There would be no necessity whatever for appointing literate men for these posts; their reports they should make verbally to the Rangers, who would have charge of a certain number of reserved tracts, and who would periodically visit them. The Forest Watchers would have to go along the whole boundary line once a month, and report to the Rangers the state of the boundary marks.

Special powers of Forest Watchers.

16. They will be expected to prevent trespass, theft, injury by fire and otherwise, and to bring offenders to punishment as far as possible as described in Rule VI. The provision in the rule regarding the seizing of axes, &c., may be inadmissible without special legislation. Meanwhile, the position of these persons might be defined as similar to that of keepers of a park or garden, who must use all lawful means for the defence of the property entrusted to them.

Ultimately it may, in certain cases, be necessary to give Forest Watchers the power to arrest offenders found within the forest limits provided—

1st.—They are unknown to the Forest Watchers, or refuse to give a suitable pledge for their appearance before the Magistrate.

2nd.—They continue in the act, cutting, removal of forest produce, or any act calculated to do mischief, or if they offer resistance. It may also be necessary hereafter to give them the power of search in enclosures or houses in extraordinary cases, and under suitable rules and precautions. Rule XXI, if adopted, would authorize the Chief Commissioner to give such power to subordinate Forest Officers.

In addition to the above, there are in the forest lands of most countries on the Continent of Europe, where the forests are systematically preserved, detailed provisions, prescribing the circumstances and formalities under which Forest Officers are permitted to make use of their arms; I trust that it will not be necessary so far to extend the powers of Forest Subordinates in the Central Provinces. They might, however, in extraordinary cases, for the purpose of self-defence, be authorized to carry arms.

Duties of Forest Rangers.

17. It may here be the place to note the arrangements which will have to be made in order to obviate Forest Watchers being drawn away from their forest by proceeding against offenders before the Magistrate, and for the purpose of keeping up communication with the Officer in charge of the Forest Division.

To a great extent this can be effected by the appointment of Rangers to have charge of Sub-Divisions, under the Officer in charge of the Division. As it is the duty of the Forest Watchers to walk round the boundary line of their forests once a month, so it will be the duty of these Rangers to visit each Forest Watcher monthly, or at such other periods as may be arranged. At these visits, they should take down in writing the reports of the Forest Watchers and transmit them to the Officer in charge of the Forest Division. This Officer or the Rangers would then arrange for the prosecution of the offenders named in the report. The reports might be in a tabular form similar to that attached hereto. (Appendix C.)

Mode of procedure against forest offences.

18. Regular periodical sittings of what might be called a Forest District Court, say once in two months, at a locality as near the forests as possible, would be another arrangement calculated to prevent the loss of time.

These Courts would be presided over by the ordinary Magistrate of the District, Native or European, the Ranger or Forest Officer in charge of the Division would act as the prosecutor on behalf of the Forest Department, and the Forest Watcher would be called as a witness only if necessary; the Forest Officer taking care that he was not detained longer than absolutely required.

In the conviction for forest offences, a great difficulty must always be the want of sufficient evidence. This, to a certain extent, is obviated in Forest Laws on the Continent of Europe, by appointing every Forest Watcher on special oath and by attaching to the formal statement verbal, or in writing, of persons thus appointed, a greater force of evidence; it will hardly be expedient to pursue this plan in forest legislation in India.

Position of Forest Watchers to be improved as the yield of their forest increases.

19. From the preceding remarks it will be apparent that the work of the Forest Watchers will grow as the yield of their forest increases. If we succeed in obtaining people for these posts who identify their interests with those of the forests in their charge, it may be possible to improve their position by raising their pay as the revenue increases, as they cannot ordinarily be promoted to the post of Ranger; I would hold out this as the prospect of their advancement.

Protection from fire of Reserved Government Forests.

20. The paths cleared round the forest must be kept clear during the dry season of all inflammable matter. This will, to a certain extent, prevent the inroads of fire from without. To prevent the spread of any fire that may arise within the forest, lanes or paths must be cleared at regular distances from each other, thus dividing the forest into compartments. The width might be between 3 and 6 yards, on hilly ground these paths would run in accordance with the configuration of the country, on level they would intersect at right angles.

Besides this a space of a few yards will have to be kept clear of inflammable matter along all paths and cart roads; all these different paths and clearings must, during the dry season, be kept clear of inflammable matter. This would be one of the principal duties of the Forest Watcher, but he will rarely be able to perform it alone without help. The area to be thus kept clear might be determined and a rate per acre fixed, which he might spend on this work as he thought best, remaining himself strictly responsible for the prevention of fires.

Cattle in Reserved Government Forests.

21. At first it will be desirable for a number of years to keep out cattle, as far as practicable from all parts of the Reserved Forest, mainly to assert the rights of the State. Afterwards grazing under certain restrictions, and on payment of grazing duty may be allowed on open ground without young trees, and in forests of an advanced age.

Public notice concerning the reservation of any forest.

22. A notice will have to be posted up in several of the adjoining villages, and otherwise be made known generally, stating shortly the boundaries of the forests, and warning people against trespass, wanton cutting, theft and mischief in the same, and cautioning them to be careful of fire in and near the forest. A copy of the notice with a sketch map of the forest should be deposited in the Revenue Court of the Deputy Commissioner.

A map or plan of each Reserved Forest should be prepared as soon as can be after the demarcation. Four inches to a mile would appear to be a suitable scale.

On these maps all compartments should be entered; they will serve afterwards when the regular cutting by compartments commences to regulate and to control the working of the forest.

Work for the improvement of the Reserved Forests.

23. Complete rest and freedom from cutting, immunity from cattle and fires will, we hope, gradually bring the Reserved Forest tracts to a high state of productiveness, still these must be aided by active measures, the principal of these are the clearing away of creepers, thinning, planting where necessary, and pruning in special cases.

The clearing of creepers should, we think, be done at once, wherever a tract is reserved; once clear of creepers, it will be easy to keep it clear afterwards. Thinning must be carried on wherever it may be possible to cover the expense by the sale of thinnings; where these cannot be advantageously cut and exported for sale by the Department, the trees to be taken out might be killed by girdling and sold, the purchasers removing them on their own account; it is evidently safer, as far as the conservancy of the forest is concerned, to make such arrangements for *dry* than for *green* timber.

Working of Reserved Forests and Revenue.

24. The expense of establishing a Reserved Forest and the charges for maintenance will, we fear, in many instances be considerable, and it will be advisable, as soon as possible, to cover them by obtaining a revenue from the forest. At a rough guess, these expences may, perhaps, be put down as follows, assuming a tract of 10 square miles with an outline of 12 miles under the least favourable conditions; in practice, I expect the outlay and maintenance charges will be much less.

FIRST OUTLAY.

	Rs.
1st.—Boundary pillars, 4 per mile, 4 × 12 =48, at Rs. 5 each ...	240
2nd.—Clearing a path 12 miles long round the forest at Rs. 50 per mile, 12 × 50=	600
3rd.—Clearing of paths 1 mile apart, 5 yards wide, at Rs. 25 per mile, 12 × 25=	300
Clearing along roads, say	50
4th.—Clearing of creepers, say	50
5th.—Survey and map, at Rs. 50 per square mile	500
6th.—House for Forest Watchers	200
Contingencies	60
Total ...	2,000

Or Rs. 200 per square mile.

The annual expenses of maintenance might be estimated as follows :—

	Rs.
Pay of Forest Watcher and quota of Forest Ranger's pay at Rs. 10 per mensem	120
Annual clearing and keeping clear of paths from combustible matters and clearing creepers at Rs. 10 per cent. on original outlay ...	100
Repairs and contingencies	30
Total annual maintenance charges	250

Or per square mile, Rs 25.

In rare instances only will the forest be in a state to admit of laying down a regular working plan at once; the ultimate aim is to have a forest stocked with trees as far as possible of uniform age, when that object is attained, regular working by rotation and compartments can commence. The paths which divide the forest into compartments will then facilitate the establishment of this working plan, until then it will be borne in mind that no tree must be felled that has not been marked by a responsible Officer; the trees will be selected from among the largest, the proportion removed annually being determined by the rate of the growth and the number of trees of the smaller sizes on the ground. Such felling can commence in certain reserved tracts at once.

Some revenue may also be obtained from the burning of charcoal, under strict supervision there need be no danger, the localities where the kilns may be made will be marked and cleared and the charcoal burners will have to bind themselves to certain conditions and to the observance of certain precautions. They may be allowed to burn all dry wood, this would be an advantage even if given without payment, and such thinnings and trees selected for felling as cannot be sold otherwise, dead wood, and trees otherwise useless, which may have to be felled for the sake of conservancy, might be given gratuitously to the adjoining villagers, on condition of their removing them if they could not otherwise be disposed of.

The sale of fruits or grass (on open grass land) or in other places where it may appear expedient, may be another source of revenue, and there would be no harm in permitting fields being established on open spots. A system which obtains in some forests of the Continent of Europe may here be noted. Hereafter its introduction may be feasible in India. When the forest is worked by rotation with the view to effect reproduction by planting, the ground, after clearing away and selling the whole of the timber is farmed, for one, two, or three years, and brought under cultivation, after which planting commences. Much can be done in Reserved Forests to obtained a revenue from the land, without endangering conservancy which it would not be safe to attempt in forests under general rules and less strict supervision.

Management of Village Forests.

25. I understand that in the case of villages with permanent cultivation, an amount of forest or waste equal to between 100 and 200 per cent. of the cultivated area, shall be included within village limits, but that in the case of small settlements with shifting cultivation, and in other cases where the people object to the above arrangement, possession as inferior proprietors or tenants of those areas of jungle may be guaranteed to them, which they have hitherto been accustomed to consider as attached to their village, "reserving the power to include the grant of the superiority of the land in their possession, in the grant of any portion of the excessive waste adjacent, which may at any future time be made to a third party." (Revenue Circular No. LXXII, dated 23rd December 1862.)

The question is now whether any restrictions are to be placed on the felling of timber in these Village Forests.

In the first case, I am inclined to think that, wherever a sufficient area of Government Forest has been reserved and duly demarcated, the Village Forests had better be exempted from all restrictions. I do not expect that the villagers will *preserve* the forest thus allotted to them; but I consider that, in the greater part of the Central Provinces, the drawbacks of interference will more than counterbalance the advantages which may be expected from any restrictions placed on the management of Village Forests.

It is different in districts where cultivation preponderates, and jungle is scarce. There it may be necessary, either not to grant any Village Forests at all, or to subject them to such restrictions as may in some measure serve to preserve them. Some parts of the Nagpoor, Saugor, and Chutteesghur districts may, perhaps, fall under this description. There are, however, in the vicinity of these districts, tracts producing forest, although this forest may at the present time be in an impoverished state. Whether in such localities Village Forests are to be placed under restrictions or not, must, I believe, be decided on the merits of each individual case.

26. It will be far more difficult to deal with those forest lands where the right of cultivators is recognized as inferior proprietors or tenants, and where over a wide extent of forest, consequently a demarcation of distinct Village Forests is not practicable. This difficulty is serious, because such cases may form the *rule*, and not the *exception* in the forest producing lands in the Central Provinces. After setting apart Reserved Forests in lands thus circumstanced, the Forest Department would, it appears, merely be in the position of a "superior proprietor" in the sense of the Revenue Settlement Circular quoted above. I understand this to mean that the cultivators would remain in possession (as "inferior proprietors") of the entire extent of forest land, to which, to use the words of the Circular, "in common parlance the name of the Village applied." Possession, I should say, implies the right of clearing and burning the jungle for Dhya cultivation, this year in one, next year in another place. This, of course, would be subversive of all proper forest management.

Establishment of Village Forests where the right of cultivators to extensive areas of forest land is recognized.

The only help which I can see, will be to form the Reserved Forests in the first instance without reference to these cases of guaranteed possession with "inferior proprietary rights," and whenever it can be done, to form these before the settlement has been made, and possession has been guaranteed, and should then any of the lands included in the Reserved Forests be claimed as part of a forest village, other lands outside the Reserved Forests would have to be given in exchange. But this, or a similar proceeding, will require special instructions to Settlement Officers in continuation of the Circular quoted above. Lands thus given in exchange, if of moderate size, and outside the Government Forests, might be exempted from all forest Rules. This would, perhaps, be an inducement to the cultivators to assent to such an arrangement.

But whatever is done, the Reserved Forests must be kept clear of Dhya cultivation, and prescriptive or customary rights to timber or other forest produce, absolutely and for ever. Our object in limiting the size of the forests to be preserved is to enable us to carry out conservancy measures to their full extent. The attainment of this object would be frustrated by admitting Dhya cultivation, and the right to timber or other forest produce within the limits of these tracts.

On the other hand, wherever a sufficient area of these Reserved Forests in a good state of timber production has been obtained, Village Forests may be exempted of all restrictions; their area may be increased, and forest land may be made available fr cultivation.

27. In the preceding remarks, I have noted the forests under A and B (paragraph 5). Some of the remainder (under *C*, *D*, *E*,) will not at all be under Government control with the sole exception of the right, which I believe Government must, under all circumstances preserve, of prohibiting the clearance or devastation of any forest, which may seriously injure the agricultural and general interests of the vicinity (Rule VIII A).

Forests for the protection of the general interests of the public to be maintained.

There are not, I believe, many localities in the Central Provinces where this precaution is requisite, but some probably are along hill streams, and on the tops and slopes of the higher hills.

I do not here speak of the influence which the clearance of forest has on the climate This, though undoubted in certain cases, is not always easily proved, and it would not do to make it a matter of legislation. But the influence in other respects is palpably evident. Even where the hills do not rise more than 1 or 2,000 feet, it is of great importance for the fertility of the sides and valleys to have the ridges and upper part of the slopes well covered with forest. The rain instead of rushing down the hill sides in torrents, and carrying away the soil, thereby silting up the valleys, will, to a great extent, be retained and filtered into the ground, thereby feeding springs lower down the hills, and effecting a more regular drainage throughout the year.

These advantages are felt to such an extent in temperate climes, that large sums are spent annually in France and different parts of Germany in replanting plateaus and high ridges in mountainous regions, which, in former ages, were covered with forests. In the tropics, particularly where the country is comparatively dry, the injurious effect of the absence of forests in such localities will be felt in a much higher degree.

If, for land sold in accordance with the waste land grant rules, no interference of this kind is admissible, then some arrangements must be made to prevent the sale of land on such localities. The Chief Commissioner's Circular No. 698, dated 17th February 1863, mainly enjoins the exclusion from the list of land reserved of "Forests already reserved by the Forest Department, and of such additional tracts, as in the Deputy Commissioner's opinion ought to be added."

Such additional instructions would be in accordance with Home Department Circular No. 5331, dated 20th September.

Additional instructions might be expedient with reference to the above remarks.

28. Some of the most valuable forest tracts in the Central Provinces belong to Zemindars and other Land-holders, and in general the extent of Forests of this class is very considerable in the Province. In districts where the greater part of the forests are of this class, and where it otherwise appears desirable to establish Reserved Government Forest under strict conservancy management, possession might be obtained by purchase or lease. In framing those leases, the conditions ought to be so as

Management of Forests acknowledged to be held in proprietary right by Zemindars, Jagheerdars, and other Land-holders.

to ensure full control over the forest to such an extent as will enable the Forest Officers to constitute it a Reserved Forest. I have before me the lease concluded in November 1862 for the Deinwah Sál Forest. The provisions of this document would not answer the purpose. The Jaghcerdar in this lease reserves to himself and to his ryots the right to cut timber, to collect fruits and other forest produce, and to make Dhya cultivation as heretofore.

Under such conditions the forest may be worked by the Forest Officers as long as the timber will last, but conservancy is impossible. If the lease comprises a large extent of country, the following wording might be suitable:—

DRAFT OF AN AGREEMENT FOR THE LEASE OF THE——————FORESTS.

(NOTE.—*When only certain Forests are leased, they might be detailed here.*)

1. The sole control of all the Forests in the Territory of is vested in the British Government, who shall appoint an officer to be Conservator of the same.

2. The British Government shall be at liberty to place under strict conservancy management such forest tracts as it shall, from time to time, select, and to lay down such general rules as it thinks proper for the control of all forests.

3. Such exemptions from these rules shall be granted, or such other arrangements shall be made as may be necessary to prevent interference with any acknowledged established customary rights of the inhabitants to cut wood for their own use, and special exemptions shall be made to enable the proprietor to obtain all timber he may require.

4. No contractors or other persons shall be allowed to cut timber in any of the forests within the territory except with the express permission of the Conservator, and on the sites and under the conditions fixed by him.

5. The British Government shall manage the forests in accordance with the general system of forest management which may be in force for similar forests within the territories of the British Government, and for the preservation of the same shall maintain such establishments as it shall consider suitable in each case. The British Government will defray all the expenses of these establishments, and all other expenses connected with the conservancy of the forests.

6. The British Government, or the contractors employed by it, will defray all expenses of felling and transporting the timber, and they shall be at liberty to dispose of it by sale or otherwise at their pleasure, subject to no other claim from the proprietor than the payment referred to in the present agreement.

The payments to the proprietor would form the subject of a separate article, and in the case of leases concluded for Forests in the Bustar or other Native States with a view to their conservancy, the following clauses might be added:—

7. The Conservator of Forests, or the Officer in special charge of these forests, shall be authorized to exercise within the Bustar Territory the powers of a subordinate Magistrate of the 1st class as described in Act XXV. of 1861 for the trial of offences against property, and relating to property-marks, mischief, assault, and contravention of such forest rules as may, from time to time, be in force in the territories under the Government of the Central Provinces.

8. The Rajah of Bustar engages to render every aid required by the Conservator in the exercise of the above powers for apprehending offenders and supposed offenders, and for enforcing penalties awarded by him. Regarding the duration of the lease, the following provision might be suitable:—

9. This agreement shall continue in force for a period of twenty years from the 1st ———— 1864; but on the expiry of that term, shall be renewable at the pleasure of the British Government for a further period of twenty years, and shall then be again renewable in like manner, and so on for ever. Provided that any revision or modification of the rates and mode of payment described in this agreement that shall be agreed to by both contracting parties may take place at any time without otherwise affecting the continuance of the agreement in any of its provisions.

The mode of payment fixed for forest leases is important. In the Deinwah lease, the entire revenue is to be paid to the proprietor after deducting the cost of Government management. It is not clear whether this cost is intended to include general charges for superintendence or merely the actual working expenses.

I do not think that this kind of arrangement would work in a satisfactory manner, I fear it would give rise to disputes.

An annual rent, if moderate, would be preferable. The rates at present paid by private parties for the lease of forests in the Central Provinces are not high. The proprietor of the Aheree Forest in the Chanda District rents his forest, not for conservancy, but to be destroyed by reckless working, for Rs. 800 annually to a native banker of Hyderabad; and this forest is stated to yield from 2,000 to 4,000 large Teak logs per annum. It is, indeed, to judge from Captain Stewart's description, one of the richest Teak localities known, and the extent would appear to be considerable.

The Forests of the Bhopal Patnum Talooka in Bustar, with a yield stated to amount from 1,000 to 1,200 logs per annum, are leased out under similar arrangements for Rs. 700 annually. It appears probable that these or other forest tracts may, at the expiration of the present leases, be obtained at a moderate annual rent; but if the amount of annual rent could not be agreed upon, then the most equitable arrangement would appear to be to pay to the owner one-half of all proceeds of timber sales and other revenue.

I do not advocate, where it can be avoided, the payment of seigniorage for every tree felled. In the case of thinnings and cutting by compartments, it is unavoidable to fell trees of smaller sizes, the rates for which could with difficulty be fixed.

The next question is, how far any interference is admissible in forests of this class not leased. It was proposed by Captain Stewart in his report on the forests of the southern part of the Nagpoor Province, "to interdict the cutting of undersized timber in all forests in Zemindaree lands—the exclusive property of Zemindars." Under timber, Captain Stewar, here understands, the reserved kinds, Teak, Sâl, &c., and in the Draft Forest Rules of the 28th, January, the prohibition to fell Teak, Sheshum, Sâl, and other interdicted kinds without permission, is extended to all lands, Zemindaree estates included.

If it is possible to enforce these measures on lands not the property of Government, they will undoubtedly have a beneficial effect on the preservation of certain kinds of trees. It is beyond my province to discuss the question, in which cases these measures could be enforced.

Management of forests under general rules.

29. Forest lands not included in any of the above classes, that is, Government Forests not made over to villages, and not specially reserved, I propose should be managed under the provisions of Rules VIII A to XVII. These rules, or similar rules to the same effect, are indispensable to maintain these forests in a certain state of conservancy, until all Reserved Forests shall have been finally demarcated, and until the system of Reserved Forests generally has proved successful.

For many reasons, the final demarcation of the Reserved Forest tracts can only be effected gradually, at the same time a considerable period must elapse before they can be made to yield any large supply of timber. Government, therefore, cannot relax its hold on the Government Forests not immediately included among the reserved tracts.

In these Forests, under general rules, it is only intended to preserve the interdicted ten kinds of trees. This it is intended to effect by prohibiting Dhya cultivation without the Deputy Commissioner's permission, in localities where any of the interdicted kinds grow, by prohibiting the felling of the same if below four feet in girth and by requiring that every tree felled shall be marked, and that they shall be granted under the following provisions. Teak and Sheshum under all circumstances under the orders of the Conservator of Forests. The other trees to be assigned under orders of the following Officers :—

Tehsildars to each cultivator, 10 trees annually for his own use.

Deputy Commissioners to carpenters or petty traders, 25 trees annually.

Conservator of Forests, if the amount exceeds 25 trees, to one individual.

It is evident that much will depend on the rules under which these trees will be selected for felling. It is true, in many cases there will not be much room for selection. A village with 50 houses may require annually 500 trees in girth above four feet of the reserved kinds, and this supply cannot easily be refused, provided the trees are in existence. This is not counting those which may be destroyed by authorised Dhya clearings.

Still there are forest tracts left with sufficient timber on them to admit of selection. Here the general principles given in the paragraph on the selection of trees to be felled in Reserved Forests should be observed, that is, if tress of a certain class, say the first, are to be felled, the proportion of those felled within a given time, on a certain area, must not exceed the number f trees of the second class, that may reasonably be expected to attain the size of the first class within that time.

It will be for the Forest Officers to apply this principle in special cases on the ground of observations on the rate of growth of trees and forest surveys, showing the proportion on the ground of the trees of the different classes. If, under these rules, the number required cannot be selected in the immediate vicinity of the village, they must be given in more remote localities.

It is apparent that this mode of proceeding is quite incompatible with the practice of allowing Railway Contractors or others to fell trees *ad libitum* (above a certain size.) All trees over which the Forest Department retained any control must be selected, marked, or girdled by responsible persons before any one can be allowed to fell them.

General remarks concerning management of Forests.

30. The following are matters of a purely technical character, concerning most of which, I have come to an understanding with the Conservator, and which I will merely notice for the sake of completeness :—

Classification of trees.

First Class, in girth above 4 cubits or 6 feet.
Second Class, in girth from 3 to 4 cubits, or 4 feet 6 inches to 6 feet.
Third Class, in girth from 1 to 3 cubits, or 1 foot 6 inches to 4 feet 6 inches.
Fourth Class, in girth below 1 cubit, 1 foot 6 inches. All trees to be measured when standing at 6 feet from the ground.

Valuation Forest Surveys.

31. The object of the valuation Forest Surveys is to ascertain the number of trees of different classes standing on an acre, square mile, or other given area. This is done either by counting all trees visible within a certain distance on both sides of a line of measured length, or by counting them on squares or rectangles one hundred feet square, or of such other size as may be convenient. A number of these squares being selected on such parts on the forest as have an average stock of timber on them. These surveys are useful to obtain a knowledge of the contents of a forest, and to determine the rules by which the trees for felling may be selected. The value of these valuation surveys must, however, not be overrated. In compact forests more or less uniformly stocked with trees, their results are of great value, and the method is capable of high development. But in the impoverished forests, such as constitute a large portion of the forest lands of this Province in a very unequal manner, the figures obtained by valuation surveys are often of little use for forming conclusions of a general nature.

Selection of trees to be felled.

32. The general rule, that a balance ought to be maintained between the timber removed annually, and the amount produced either by natural growth or by planting, has been noted above; of the minor considerations, I mention the following :—

1st.—Care should be taken not suddenly to denude any forest tract of large trees, which afford shelter against the sun, and serve to keep the ground a little more moist and cool.

2nd.—On or near any blank space in the forest which admits of being re-wooded, as many large trees should be left standing as possible to facilitate the growth of seedlings.

3rd.—On the side exposed to prevailing winds a belt of forest should be left intact.

4th.—In the case of coppice woods, managed for the yield of firewood, a number of seedling trees must be left standing to provide for the growth of young trees in the place of old stocks becoming unproductive.

5th.—The selection should be adapted to the requirements of the working of the forest, that is, operations should not be scattered over a large area, but should be carried on successively in one sub-division after another in regular rotation. This plan can be brought to perfection only in compact forests, consisting of trees more or less of the same age, but it can be carried out in a less perfect manner in every kind of forest.

Thinning.

33. It is impossible to lay down a general rule fixing a number of trees per acre which would render thinning necessary, this varies according to soil, the size of trees, level or sloping ground, and other circumstances.

But the rule is plain that thinning is indicated when trees stand so close as to impede each others growth. Of two or three offshoots from one stool, or two or three trees growing up close together, all but one should invariably be removed. Thinning can, of course, as a rule, only be carried on when the expense can be covered by the sale of the thinnings. When this cannot be done at all, or not immediately, much good may be done by girdling the trees and thus destroying them. Thinning operations require the greatest care in a climate as dry as that of the Central Provinces. The ground should be kept well under shelter, without, if possible, impeding the growth of the trees.

Clearing of Creepers.

34. The clearing of creepers is an operation which should be carried on on a large scale in all Government Forests from which timber is exported or likely to be exported. Only in entirely out-of-the-way places, or in forests worthless for timber, it may be neglected. It involves comparatively little expense, and greatly improves the growth of the trees. In forests which are not protected against fires, care must be taken to cut the creepers in two places, above and below, and to remove the piece cut out, so as not to feed the jungle fires near the stem of the tree.

Protection from Fires.

35. The productiveness of all forests in India might be considerably increased, if it were possible to prevent the annual fires which destroy the possibility of a formation of vegetable mould, bake the surface of the soil, expose it to the direct action of the sun, allow the rain water to rush off, instead of its being

retained under the cover of leaves and absorbed into the soil, and which do immense injury to young trees. I am fully alive to the great difficulties attending the success of any attempt to prevent fires on a large scale, still I think that it might be attempted, not in Reserved Forests only, but wherever it appears likely to succeed.

Protection from Cattle.

36. The mischief done by cattle is two-fold; many, if not most of the jungle fires arise from camp fires lighted by herdsmen, and the systematic burning of the old grass to allow new fodder to spring up.

The damage done by the animals is principally limited to young trees, after the forest has passed a certain age, the injury is much less.

The keeping out of cattle is, I believe, fully as difficult as the keeping out of fires. In some districts the custom prevails to allow the cattle to graze alone without herdsmen. In others an exclusion of cattle from the forest would be ruinous to the district. Local experience alone can be a guide in this respect. Cattle cannot be successfully excluded from forests under general rules, but in Reserved Forests exclusion, wherever necessary, should be attempted.

Plantations. (Pterocarpus santalinus.)

37. There are not many kinds of trees which are likely in the Central Provinces to repay the expense of planting on a large scale. Teak, and perhaps Red Saunders and Sandalwood might be tried. I agree with Captain Pearson in the expediency of selecting a suitable locality for one large Teak plantation. Good soil and the facility for disposal of timber are the first conditions. These Captain Pearson thinks are found in a tract of land extending along the north bank of the River Taptee, and along the west bank of the Gangul River. He states that nowhere in the Central Provinces had he met such promising young trees, and gives several instances of good and rapid growth. The extent of the plantation he intends to be upwards of four square miles. The logs can be floated down the Taptee River, and placed on the railway at Berhampoor. Another plan is to convert the Garracottah Teak preserve in the Saugor District into a regular plantation. Here the rate of growth appears to be slower, and circumstances generally less favourable, but the place is comparatively healthy throughout the year.

After the selection of a suitable site and its demarcation, free from all interference, the first step would be I should say to sent for a practical man from Scotland, specially trained as a Forester to be placed in charge of the work. He might in time train Native Foresters to manage plantations in Reserved Forests in different parts of the Province.

Review of Forest tracts proposed to be reserved. Saugor Division.

38. The following remarks are based entirely on Captain Pearson's and Major Stewart's reports of the different parts of the forests of the Central Provinces. In the Saugor District, Captain Pearson proposes as stated above to arrange at Garracottah a model Teak plantation. He thinks that there are prospects of disposing of the timber at sufficiently remunerative rates; another he proposes to establish at Shagurh, and he suggests the reservation as a State Forest Domain of a district near the Heerapoor Iron Mines, the produce of which may be required for the manufacture of charcoal.

In the Dumoh District no timber is supposed to exist sufficiently valuable to justify the demarcation at present of a Government Reserved Forest.

In Baitool and Hoshungabad, the Oak plantation noted above is to be established on the banks of the Taptee River, and five extensive forest tracts on the hills between the Taptee and Nerbudda Rivers are to be reserved. The principal value of those tracts consists in their having a large quantity of young Teak on them, some are known formerly to have produced good timber which was exported in different directions to *Ellichpoor* in the south, and to the large cities of *Oojein*, *Indore*, and *Oodeypoor* in the north-west; much Teak timber has also been used in house building in the district itself.

There seems to be no reason to anticipate any difficulty in the disposal of the timber to be produced; it would appear that there is a prospect of small immediate returns by taking out short and damaged timber.

But in several instances Captain Pearson remarks, that owing to the great dryness of the soil, the Teak on the hills never attains any great size.

The total area here proposed to be placed on the footing of a Reserved Forest, I understand to be 200 square miles in Baitool, and about 150 in Hoshungabad, which, with about 100 square miles in the Saugor District, would give a total area of 450 square miles in this division. This, if the estimate in para. 254 is adopted, would require a first outlay of Rs. 90,000, and an annual maintenance of Rs. 11,250, including the pay of 45 Forest Watchers, and a suitable number of Rangers at an aggregate monthly outlay of Rs. 450. I am not able to estimate what proportion of this amount would be covered by revenue from these forests, but fear it would at first not be much. Under these circumstances it appears expedient to proceed only gradually with the final establishment of these Reserved Forests. They should all be demarcated so as to assert the rights of Government to prevent their being sold as waste land. Boundary pillars should also be erected, but the clearing of roads and the measures for protection against fire and other forest work might be commenced in districts of limited extent

only, and gradually be extended. From the description of these forests given by Captain Pearson, I do not feel confident that in all instances tracts with good soil only have been selected. The necessity of doing this requires in the face of the above figures no further explanation.

Jubbulpoor Division, Chindwara District.

39. In the Chindwara District, forest tracts are to be reserved, measuring in the aggregate upwards of 500 square miles. Two of these, the Pench and Deogurh Forests, are on the south face of the Satpoora Range. They contain quantities of young Teak, but their principal value consists in Saj, Kowah, Dowrah, and other woods of value which attain a good size in the valleys and ravines.

These forests have yielded large quantities of sleepers for the Nagpoor branch of the Great Indian Peninsula Railway. A very large proportion, and in some parts of the forests all large trees have been felled, and care will have to be taken to stop the progress of denudation of the hills which Dhya cultivation and excessive cutting of timber have brought about.

On some of the hilly tracts to be reserved here, every tree must for some years to come be left on the ground, and all bamboo clumps must be carefully preserved, in order to shield the soil from the direct action of the sun.

In other localities especially where young Teak predominates, thinning is indicated.

The vicinity of the well cultivated district of Nagpoor justifies the expectation that these forest lands, if properly managed, will in time yield a fair revenue; but in the first instance there will be necessarily a considerable outlay not covered by immediate returns.

The two remaining forests Captain Pearson proposes to reserve near the Puchmurree Hills. The Boree Teak Forest (150 square miles) and Deinwah Sal Forest (100 square miles) leased from the Puchmurree Thakoor.

The capabilities of the Boree Forest for producing fine Teak timber appear to be good. Captain Pearson states that about 650 of the finest logs were cut in these forests by Mr. Whittaker for the railway, and that if Dhya cultivation could be stopped, a fine Teak Forest would spring up in the course of years.

The export of timber from these forests is difficult; the Nerbudda branch of the Great Indian Peninsula Railway would be the nearest point of demand; the distance is from 40 to 50 miles through the valley of the Towa River.

The conditions of the lease of the Deinwah Sal Forest have been discussed above. As long as the proprietor and his ryots reserve the right of Dhya cultivation and cutting timber for their own use, this tract cannot be placed on the footing of a Reserved Forest. The duration of the agreement is not fixed, but after gaining a few years experience as to the working of it, a change of condition might perhaps be effected by limiting the area of the forest leased or otherwise.

The forest itself has considerable value. Captain Pearson describes the ground as level, the Sal trees as large but knotted, and not generally very straight, and adds, it is really the only large timber now left standing in these parts.

No Government Forests are said to be in the Nursingpoor District.

Seonee District.

40. In the Seonee District the timber resources must at one time have been very extensive. Young Teak is found over the greater part of the district, and the Dongratal and Durassee Forests along the southern slope of the Satpoora Range are said to have contained fine Teak, which is supposed to have gone to Kamptee and Nagpoor. Here Captain Pearson proposes to reserve an area of 400 square miles. On the north side of the Seonee District from the borders of Mundla to Nursingpoor, the hills are more or less covered with Teak. But the tree is stunted, and throws out large branches at 5 or 6 feet above the ground; some of this may, I believe, be ascribed to jungle fires, creepers, and the practice of lopping off branches for Dhya clearings; but the indifferent growth of young Teak saplings indicates that these cannot be the only causes. Soil and other circumstances not yet ascertained, must have something to do with this irregularity of growth.

All along the Wyne Gunga there are a few patches of young Teak, but though the river admits of floating, Captain Pearson does not think this a suitable locality for Teak plantations on a large scale on account of the largely extending cultivation. But he hopes for good success from encouraging the heads of villages to conserve the young Teak for their own benefit. This plan may be carried out under Rule XI, which vests the control of the cutting of Teak entirely in the Forest Officers.

In the south east corner of this district there is the Sonawanee Forest, a vast Bamboo Forest containing also some fine Beejasal and Tendoo; and further to the north there is some fine Saj on the Ghat. These localities Captain Pearson proposes to keep as a source for the future supply of Railway sleepers for the Nagpoor line. Their area is estimated at 120 square miles.

Besides these he proposes reserving the waste land on the Silwa flat, near the road from Seonee to Jubbulpoor, to the extent of about 10 square miles, with the view of forming a plantation of Teak, Mowah, and other useful woods.

Mundla District.

41. In the Mundla District the Teak Forests along the upper part of the Nerbudda River have at one time contained a considerable quantity of Teak, but owing to the great facilities for carrying away timber, the forests bordering on that river have been literally denuded of every thing both large and small in the shape of Teak trees. Some good Sheshum, Saj, Kowah, Beejasal, and Hurdoo trees however are left, and in the southern portion of the Mundlah District the fine Sal Forests still remain intact.

Near the Nerbudda River Captain Pearson proposes to reserve the Gogree Forest above Ramnuggur. Its extent is about 200 square miles. Extensive plantations will have to be established to replace the Teak and other timber destroyed, but the neighbourhood of the river makes revenue certain.

The former state of the Nerbudda Forests will be apparent from the following remarks:—

The timber revenue realized at the Goaree Ghat Custom House near Jubbulpoor in 1860, 1861 and 1862, justifies the conclusion that 1,50,000 logs, mostly Teak and of small size cut for sleepers, were brought down during that time. The number of Teak trees felled is supposed to have been one lakh. Of these trees one-half has been brought down, the remainder has been destroyed by fire, or is still lying in the forests and at depôts. The area covered with Teak producing forests is estimated at 800 square miles, this would give 125 trees felled per square mile. The trees cut were small, the girth not exceeding 3 or 4 feet. The best trees were a batch of two hundred got out for the School of Industry under Major Rauken, some of these measured upwards of 50 cubic feet. They were brought out from the hills with the greatest difficulty, some had to be carried 5 miles on men's shoulders. Another batch of timber about 20 feet long and 4 feet in middle girth was cut in the Jugmandal Hill for Mr. Norris, the Contractor of the Jubbulpoor Line.

It is evident, therefore, that the timber in the Upper Nerbudda Teak Forests was neither very large nor plentiful.

As regards the stock of growing timber, the Sal Forests of the Mundlah District are very rich. But it will be a difficult matter to make the timber available for the market. They are situated on the head waters of the Phen, Halon and Bunjur Rivers, all tributaries joining the Nerbudda from the south. The distance from that river is nowhere less than 30 miles as the crow flies, and roads would have to be constructed for the carriage of the timber, which would then have to be floated to Jubbulpoor on rafts of bamboos or light wood.

There seems to be no reasonable prospect of being able to export the timber from these forests towards the south and south west. Yet these circumstances ought not to stand in the way of the conservancy of these Sal producing tracts. The scarcity of large timber within reasonable distance of the Jubbulpoor branches of the G. I. P. and E. I. Railways justifies the expectation that by the time when the first set of sleepers will require renewal, timber prices will rise sufficiently to make the working of these forests remunerative. Meanwhile, it will be necessary to arrange conservancy measures with the least possible expense.

Review of the Jubbulpoor Division.

42. In the Jubbulpoor Division, therefore, we have the following tracts proposed to be reserved:—

CHINDWARAH.

	Square miles.	
Pench Forests	150	
Deoghur „	100	
Boree „	150	
Deinwah „	100	
Total		500
SEONEE.		
Dongratal and Durassee Forests	400	
Sonawaree Forests	120	
Silwa Flat	10	
Total		530
MUNDLAH.		
Gogree Forest	200	
Rajadhar and Bunjur Sal Forests	500	
Total		700
Total in Jubbulpoor		1,730

This is a very large area, and it is evident that at once to put the whole extent on the footing of Reserved Forests would be ruinously expensive. Here also we must proceed gradually and with caution.

The Deinwah and the Mundlah Sal Forests will at first require but little outlay, and in each of the remaining six proposed districts, I would recommend that after the entire area has been taken possession of by the Forest Department, a tract of from 10 to 20 square miles only in each district be put under strict conservancy management, the extent of this tract being gradually increased.

Nagpoor Division

43 In the Nagpoor District no forests are stated to be on Government lands, with the exception of a tract of about 20 or 30 square miles, which will form part of the Dongratal Forests noted under Sconce. In the Chandah District, two forest tracts are proposed to be reserved by Captain Stewart, late Explorer of Forests, *viz.*, Dhaba and Mohrlee Forests.

The Dhaba Forest is situated between the Wurdah and Wyne Gunga Rivers, about 25 or 30 miles the south east of Chandah.

Captain Stewart describes this forest tract as occupying about 120 square miles, and as containing about 10,000 trees of all sizes. I suppose this means Beejasal trees, which would be at the rate of 83 trees per square mile, or one tree only on 8 acres of forest. The other trees of any value are Saj, Rohnee, Dhowra, Mowah, and Hurdoo. Captain Stewart thinks that under judicious working of this forest, the whole of the wants of the Engineer Department at Chandah may be supplied, and perhaps a little timber may be sold to the public besides.

The Mohrlee Forest tract is situated between Chandah and Chirmoor. The area proposed to be conserved is estimated at 250 square miles. There are large trees of Saj, Terminalia, Belerica, Chebula, Tendoo, Dowrah.

Captain Stewart states that some trees have been felled in this forest for sleepers for the Nagpoor line, and he expects, under regular management, a good yield of timber for that purpose.

Forests on Zemindaree lands in the Nagpoor Division.

44. There are other forests of value in the Chandah District, but they are all reported to be beyond Government control, being the property of Zemindars and other landholders. The most valuable of these appears to be the Teak Forest of Aheree. This forest is situated on the left bank of the Pranheeta, at a distance of 80 miles from Chandah. The present area of the forest is estimated by Captain Stewart at 250 square miles, all of which, however, is not covered with Teak. In one part of this forest Captain Stewart counted in one day, between Korsinee and Tulwarra, along the line of march, upwards of 5,000 trees varying in girth from 4 to 13 feet, the greater number ranging from 5 to 7 feet, and having straight branchless stems of from 40 to 60 feet in length, and often even more He adds, I have never seen such noble Teak, nor the trees so numerous, and yet the most reckless and wasteful cutting has been going on for two seasons in this very tract. In this part, on the lands of Poosgoohilly, Korsinee, and Tulwarra, Captain Stewart estimates at least 25,000 teak trees. These data indicate a forest unusually rich. To illustrate this, I will note here the results of a few forest surveys in the richest Teak localities of British Burmah as given in the report for 1861-62 :—

No. of days of Survey.	First Class, above 6 feet.	Second Class, above 4 feet 6 inches.	Area surveyed (in square miles.)	No. of the two first classes counted in one day.	Remarks.
3	770	5,190	0·37	1,987	Royal Forest Prome District; Koon Forest Sitang District; Upper Zamayee Forest.
6	5,212	2,368	1·41	1,263	
11	702	2,613	0·822	301	

Had Captain Stewart measured the length of the tract on which these 5,000 trees were counted, and given an estimate of the average width, his figures would give an excellent idea of the contents of this forest tract, but even as they stand at present, they are valuable.

The Aheree Forest is considered the property of the widow of the late Zemindar of Aheree, and has been leased by the proprietor to the firm of Bugwan Doss and Company of Hyderabad for 20 years, of which lease 12 years had expired in July 1862. The amount paid for this lease is only Rs. 800 per annum.

The forest has been worked for the last 40 years, yielding, it is believed, annually from 2,000 to 1,000 logs. The timber from this forest is carted to Indarum, thence floated to Mahadeopoor, 12 miles below Seroncha, where most of it is landed and carted to Hyderabad. Captain Stewart saw upwards of 1,000 logs lying at Indarum, 2,000 good logs on his way to Korsinee, and the leaseholder's people informed him that there was 1½ lakhs worth of timber lying felled in these jungles. Captain Stewart speaks of the great waste with which these

forests are at present worked, and recommends that, if, on the expiration of the present lease, a sufficient quantity of Teak should be found remaining in these forests, Government should endeavour to secure their possession by paying a certain sum per annum, or a certain royalty per tree.

Another Teak producing tract mentioned by Captain Stewart in the Chandah District, is the Pannabaras Forest, situated about 150 miles to the north east of Chandah. This forest also is considered as the property of a Zemindar who has leased it out to Dr. Stanborough for three years. This lease, it is believed, has nearly expired by this time, but the forest, which is stated at one time to have supplied part of the Kamptee requirements, and those of Nagpoor, Bhundarah, and Raepoor, is said to be exhausted, none but the smallest sized trees now remaining.

I fully concur with Captain Stewart in considering it extremely desirable that Government should secure the possession of the Aheree Forests as soon as practicable. As far as I can form an idea of the resources for the renewal of sleepers on the Nagpoor branch of the Great Indian Peninsula Railway, Aheree seems to me the forest to look to. Judging from the description of the sleepers laid down, I fear that these renewals will be necessary on an extensive scale in a few years, long before the forests in the Satpoora Range will be in a position to yield the timber required.

In the Bhundarah District there are some Teak localities, and extensive bamboo jungle north-east of Langee, with Saj, Dowrah, Sheshum, Tendoo, and Mowah in the valleys between the small hills. But Captain Pearson states that the whole of the forests of this district, with very few exceptions, not worth recording, are in the possession of Zemindars.

Godavery Talooks.

45. In the Seroncha Talooka, the forests are very extensive, and Captain Stewart states that the right of cutting the timber in these forests has been excluded from the terms of the lease under which the Zemindar holds these lands; he adds, that these forests have at one time produced much fine Teak, but that timber merchants have left but little and that the worst behind them. He estimates the number of trees of all sizes, from the sapling of one foot girth to the full grown tree of 4 feet diameter, at not more than 10,000, and adds, that of these one-seventh only are fit for the axe. But he observes "we know that the ground can produce large Teak."

The area covered with forest may from the data given in Captain Stewart's report be assumed at about 600 square miles It is not probable that the whole of this area produces Teak, if it did, there would, according to the above estimate, be only 16 trees in girth above 1 foot on the square mile.

The other trees mentioned by Captain Stewart are, Beejasal, Tendoo, Unjun, Dowra h These woods, though valuable, cannot form an article of trade down the Godavery, as they will not float by themselves, and the distance to large stations or railway lines is too great to justify the expectation of any export by land. Consequently the prospects of a revenue from these forests are very small, and Captain Stewart very correctly observes that they should be as inexpensively conserved as possible, until the day arrives when their timber can be advantageously disposed of.

In the five other Godavery Talookas, which occupy the left bank of that stream from the Indrawutty to below the Sevry River, Teak is found only in Cherla, but the quantity is so little, that according to Captain Stewart it is hardly worth mentioning. The other trees are the same as in the Seroncha District. To judge from these data the reservation of Government Forests would only appear indicated in a portion of the Seroncha Talooka, the area to be fixed by special examination of the tract.

Bustar and Kalahundy dependencies.

46. In the Bustar and Kalahundy dependencies there are extensive and fine Teak and Sâl Forests near the feeders of the Indrawutty and the headwaters of the Tail River, a tributary of the Mahanuddee. But these forests are entirely beyond the control of Government. It would be necessary to obtain possession by lease or purchase from Rajahs of these dependencies.

In the Bhopalputnum Talooka of Bustar, Captain Stewart reports a good deal of Teak in the hills. The forests are at present leased to the firm of Harridoss Bugwan Doss of Hyderabad, for an annual payment of Rs. 700. Captain Stewart mentions that from 1,000 to 1,200 logs have for the last 30 or 40 years been annually exported from this forest. It would appear that only small timber is now left. The logs are floated down the Indrawutty River to the Godavery.

A considerable quantity of Teak is reported in the Vecjapoor District. No timber has, however, as yet been removed from these forests, owing to the hilly nature of the country and the difficulty of access. It is thought that the bringing down of timber would not prove remunerative.

It does not appear called for in this paper to give an abstract of Captain Stewart's interesting report on the more remote Teak and Sal Forests of the Bustar State, and those of the Kalahundy dependency. Even, if these forests could be leased, the chances of making them profitable by bringing out the timber, appear too small to justify any suggestion regarding them at present.

Chutteesgurh Division.

47. Regarding the forests in the Chutteesgurh Division, Captain Pearson may, perhaps, be able to make proposals on the ground of the Report of Messrs. Forsyth and Burton, who were engaged last dry season in exploring them.

Beejoragogurh Forests.

48. The Beejoragogurh Forests, which are managed by the Officers of the Central Provinces, must be mentioned here. They are situated partly in the Jubbulpoor Division, partly in the territory under the Political Agent at Nagode. These forests are principally composed of Sal. They are the outskirts of an extensive Sal Forest in the Rewah Territory. The average distance of the forest from the Jubbulpoor, Allahabad Railway is about 40 miles. The ground is partly level, partly undulating, and intersected by river beds and ravines; but there is no serious obstacle during the season to the carting of timber to the Railway.

On the 27th November 1861, the Officiating Political Agent, Rewah proposed that these forests should be worked on account of Government. The main points of this proposal appear from Captain Pearson's letter to Mr. Coles, dated 12th October 1861. They were as follows :—

1st.—The Sal and other timber in these forests is to be converted into sleepers by direct Government agency.

2nd.—The trees to be girdled in the spring of 1862, felled the succeeding year, the logs to be cut up into 10 feet lengths and collected, then left to season, and sawn up when required into sleepers.

The proposal does not say how the trees are to be selected, but suggests that a Sal plantation be established, and young trees be planted in lieu of those cut down.

This proposal was sanctioned by Government on the 13th January 1862, and the necessary funds were placed at Captain Pearson's disposal. The orders of Government and the subsequent correspondence were addressed to the Chief Commissioner, Central Provinces.

The work done in accordance with these orders up to the present time has been as follows :—

Upwards of 32,000 trees have been felled; of these 10,000 are in that part of the Jubbulpoor District which adjoins Beejoragogurh; the proportion of Sal to other trees, as far as the data go, is supposed to be as follows :—

	Sal.	Other trees, (Kowah, Saj, Beejasal, Hurdoo, Rownah).
Jubbulpoor	3,500	6,500
Beejoragogurh	18,000	4,000
Total ...	21,500	10,500
Grand Total ...	32,000 trees.	

The average size of the trees felled, varies from 5 feet to 7 feet in girth, at 6 feet from the ground, and from 20 to 30 feet length of the stem. They are expected to yield about 5 sleepers per tree on an average or 1,50,000 sleepers, and in addition to this a large quantity of fence posts, and other scantling.

The trees are not regularly shaped and frequently very knotty, many also are unsound, and some have cracked under the influence of the sun. But, upon the whole, I believe, that if worked with due care and economy of material, the estimate of 1½ lakhs will prove correct.

Captain Pearson informs me that he directed only trees above 8 feet in girth to be felled, and one in ten to be left standing for seed. The results of the Forest Surveys made on the 23rd and 24th March, show that on the area surveyed, *viz.*, about 192 acres, there were counted :—

Felled trees, mostly 1st Class (girth above 6")	587
Standing trees, 1st „ „ „ „	12
Standing trees, 2nd „ „ „ 4'6")	128
Total ...	727

So that out of 100 trees of the first two classes 80 were felled and 20 were left standing, and the forest has been reduced from one containing 2,420 trees of the two first classes on the square mile, to one containing only 470. And on the 27th March last, Captain Pearson examined another part of the forest to the extent of 64 acres, with the following result :—

Felled trees	3,310	1st and 2nd class per square mile.
Standing trees	none	1st Class.
Standing trees	890	2nd class per square mile.

These results are not favourable as regards conservancy. To ensure the maintenance of the forest in a satisfactory state, a greater proportion of large trees should have been left standing. However, the orders of Government contained no caution regarding the selection of the trees to be felled, but merely an approval of Captain Pearson's original scheme, the object of which was to procure as many good Railway sleepers as possible.

Captain Pearson now fully understands that conservancy of a forest is not identical with felling the whole of the large trees or the greater portion of them.

It is fortunate, that although the number of second class trees is not large, there is a fair quantity of trees of the third class, affording some shelter to the ground from the direct action of the sun.

On the entire area surveyed (0·4 square mile) 2,070 trees in girth between 18 inches and 4 feet 6 inches were found. This corresponds to 5,170 per square mile, or 8 trees per acre

If we assume that the 32,000 trees were felled at the rate of 1,000 trees on the square mile, which may not be far out, we obtain about 30 square miles of forest partly producing Sal. But this forest is by no means compact; it is everywhere intersected with fields and open grazing land, and there are many villages on its border, and on open land surrounded by forest on all sides. And the traces of all temporary clearings, as well as fresh clearings for cultivation, are met with everywhere throughout the forest. If further proof were wanting, these localities would show the serious injury done to forests in this part of India by laying bare any portion of it. On most of the old Dhyas examined by me, the stumps of the trees felled stood solitary on the ground, no young growth of Sal had replaced the forest cut down. In a moister climate as in Burmah and Malabar, such spots are rapidly covered with a dense scrub, out of which a forest is gradually reformed, but in a large portion of the Central Provinces the ground remains bare for a long series of years.

A portion of this Sal Forest should certainly be placed on the footing of a Reserved Government Forest as soon as possible. The area is limited, and the necessary arrangements can be made at once. The original proposal of planting Sal in the place of the trees cut down, has not been carried out, and I would not recommend that any expense be incurred on that account except to plant localities laid bare by Dhya cultivation, and other vacant spots in the forests. There is an abundance of young Sal springing up in the forest.

The completion of the sleeper cutting work will require the presence of one European Assistant on the spot for some time to come, and this affords an excellent opportunity for the establishment of a Reserved Forest in this District.

The vicinity of numerous villages will render the keeping out of cattle exceedingly difficult, perhaps impossible. But this is a point of secondary importance. The principal object to be gained will be to prevent Dhya cultivation, unauthorized cutting, and fires whenever this can be done.

49. The area of the Saugor, Jubbulpoor, and Nagpoor Divisions may probably be estimated at somewhat more than 50,000 square miles. On this area it is proposed to reserve forests as follows :—

Abstract of forests intended to be reserved.

In Saugor	5 tracts with	450	square miles.
Jubbulpoor	6 „	1,730	„
Nagpoor	2 „	370	„
Beejoragogurh, say	... ...	30	„
	Total ...	2,580	square miles,

or 5 per cent. of the entire area.

The population of this area would, according to para. 488 of the Central Provinces Administration Report for 1861-62, stand as follows :—

Saugor and Nerbudda Territories	3	millions.
Nagpoor (less Bustar)	4	„
Total ...	7	millions.

This would give 0·23 acres of State Forest land for each head of the population. Let us compare with this result the corresponding figures of different parts of Europe. In France 16·79 per cent. of the entire area is covered with forest, and 1·22 acre of forest land fall on each head of the population. Of this forest belongs to the State 13·8 per cent., or 2·31 per cent. of the entire area, or 0·17 acres of State Forest per head.

The Forests belonging to villages and corporations amount to	21·2	per cent. or	3·48	per cent. of entire area.
Private Forests „	65·0	„ „	11·	„ „ „
Total ..	100·0	„ „	16·79	„ „ „

In Bavaria the figures stand as follows:—

State Forests	...	...	37·2	per cent. or	10·9	per cent. of entire area.	
Village do.	...	...	15·6	„	„ 4·6	„	„ „
Private do.	...	...	47·2	„	„ 13·8	„	„ „
	Total	...	100·3	„	„ 29·30	„	„ „

In this country the area of forest land per head amounts to 2·46 acres, of which the State Forests amount to 0·91 acre.

This part of the Central Provinces would, therefore, as far as the general statistics of the area of their proposed State Forests in relation to the entire area of the country and the population are concerned, stand in the middle between France, which has only a moderate Forest area and Bavaria which has a very large one.

The Reserved State Forests in the Central Provinces will form only a small proportion of the entire area covered with forest jungle. On the other hand, it will be borne in mind that one acre of forest land has a very different value according to the rate of timber production. We may assume the average production in the countries named to be upwards of 50 cubic feet, whereas in many of the Forests of the Central Provinces in their present impoverished state, five cubic feet per acre may be in excess of the annual average. So much appears evident, that we have at present no reason to consider 2,500 square miles of Government Reserved Forest for this part of the Central Provinces as excessive.

As explained above, at first it may only be practicable to place under systematic management a limited area, say 200 square miles. This will, according to the present estimates, require a first outlay of Rs. 40,000, and annual maintenance charges of Rs. 5,000.

Working of the Forests.

50. The question has been asked, how far it is the duty of Forest Officers to supply the Railway and Public Departments with timber. I will endeavour, as far as the data at my disposal admit, to show what has been done in this respect. The following remarks are the abstracts of notes made by Captain Pearson and myself in March last.

The Mundlah Forests have from 1860 to 1862 yielded for the Jubbulpoor branch of the Great Indian Peninsula Railway, and for the requirements of the Public Departments at and near Jubbulpoor, upwards of 15,000 logs of timber, mostly Teak. Few of these measured above 30 cubic feet, the average may perhaps be put down at 15 cubic feet. It is believed that these are the proceeds of 1,00,000 trees felled in those forests, part of which have not yet been removed, or have been destroyed by fire.

As stated above, the forests are believed to be nearly cleared of all trees likely to yield timber, a few localities difficult of access excepted.

The yield of the forests on the north face of the Satpoora Range has been as follows:—

20,000 sleepers of Saj, Hurdoo, and other kinds have been collected by Mr. Williams near Nursingpoor, chiefly drawn from the north of the Seonee District.

50,000 sleepers of Saj have been collected by Mr. Williams at Garawarra from the north of the Chindwara District.

10,000 sleepers, chiefly Unjun, a few Saj, have been drawn from the Deinwah Valley by Mr. Williams.

20,000 sleepers of Saj and Unjun collected at Sohajpoor by the same, from Chindwara and Hoshungabad, (Deinwah.)

15,000 sleeper collected at Hurda by various petty contractors from Baitool.

Total from the north Satpoora Forests upwards of 1,15,000 sleepers, chiefly Saj and Unjun, corresponding to about 35,000 trees.

On this tract of country it is supposed that an equal number of trees of these kinds is left standing. But a large portion of the forest is nothing but useless scrub of Salee.

From the Baitool Forests the following timber has, during the last four years, been made available for the Nagpoor and Jubbulpoor Branch of the Great Indian Peninsula Railway. Mr. Whittaker had permission from the Deputy Commissioner to cut 30,000 Teak trees. He supplied to the Nagpoor branch of the Railway at Oomrawuttee 25,000 sleepers, and 3,000 long[illegible]s. As stated above, there is nothing left now in the Baitool Forests except saplings, short and damaged timber.

Wasodevah, an Agent of the Jubbulpoor branch, had permission to cut 80,000 sleepers of woods of different kinds in these forests, to be delivered at Hurda in Hoshungabad.

Messrs. Hood, Winton, and Mills, the Contractors of Section No. 16 of the same line, were also cutting sleepers of different kinds of timber in the Baitool Forests; no limit as to quantity was fixed for their permission.

On the south face of the Satpoora Range in the Chindwara and Seonee Districts, the following timber has been cut for the Nagpoor branch of the Railway :—

Messrs. Lee, Watson, and Aiton, 50,000 sleepers of Saj and other woods, not Teak in the Roona jungles of the Seonee District; Ramasawmy Modeliar, 100,000 sleepers from the Chindwarra jungles on the Pench.

It is believed that upwards of 50,000 trees have been felled, being in the proportion of four out of five of all large trees of the more valuable kinds.

In the Deogurh Forest, to the west of the tracts just mentioned, Captain Pearson thinks one lakh of sleepers may still be obtainable if care is taken in preparing them; but there seems to be no other source of supply on the south face of the Satpoora Range except much further east in the Sonawaree District, where there are a few fine Beejasal and Tendoo trees remaining and some fine Saj trees.

The large sleeper contractors mentioned above have, or have had permission to fallen certain districts of wide extent, whatever trees they pleased, provided they were below 3 feet in girth, some of the these contracts were restricted as to time and quantity, others not. The payment in all cases of Railway sleepers, was 4 annas per sleeper, this is at the rate of Rs. 3-12 per ton of 50 cubic feet taking the sleeper at 3·4 cubic feet, no conditions could be more liberal, and I fear the low rate of payment has not served to induce these contractors to insist on an economical working up of the timber. Captain Pearson himself acknowledges that in many instances the trees have been cut up in a most wasteful manner.

With these facts before us, it cannot certainly be said that the Forest Officers have been unmindful of the interests of the Railway and Public Departments.

Going through the forests, and the seeing the greater portion, and in some instances all large trees felled to meet these requirements, one is rather inclined to doubt whether the interests of the forests and the future demands of the country, including the prospective interests of Railways, have been guarded with sufficient care and jealousy.

Source to meet future requirements of Timber.

51. As regards further arrangements, there can, I believe, be no doubt, that in Government Forests, sleeper contractors can no longer be permitted to select the trees to be felled themselves. Existing contracts must, of course, run out, but new contracts should be concluded on the distinct understanding that no trees but those marked by Forest Officers are to be felled. It might be objected that trees should be selected in Government Reserved Forests, but that in the forests under general rules, contractors out to have liberty to cut. Against this I urge that none of the Reserved Forests are as yet placed on such a footing that they can be guarded against encroachment. This will take time, meanwhile the rule must, I believe, apply to all Government Forests.

I understand that after the existing contracts shall have been completed, there will be no great want of Railway sleepers for the completion of the two lines. On the Jubbulpoor branch, a large proportion of the sleepers are Teak. These, through mostly from young trees, often small and irregular, may be expected to last from 15 to 20 years. The sleepers cut of Unjun, (Hardwickia binata), if cut of heart-wood from old trees only, may last equally long. The sleepers of Saj, Hurdoo, and other kinds will, I fear, not last many years, and there will, therefore, be some demand for sleepers annually on this side.

The Beejoragogurh Forests, and the forests in the Rewah Territory will, I believe, fully be required to meet the demands of the Jubbulpoor branch of the East Indian Railway. Thus there only remain the Sâl Forest of Deinwah Valby and those south of the Nerbudda River in the Mundlah District.

The Deinwah Sâl Forest is estimated by Captain Pearson to cover upwards of 100 square miles. In the absence of valuation surveys, it is impossible to estimate the yield annually. It would be very desirable to have this want supplied, and to lay down a regular plan for working this forest with a view to a regular and permanent supply of timber from it. Should this not suffice, a road would have to be built from the Mundla Sâl Forests to the Nerbudda River, and Railway sleepers brought down from that quarter also.

The working of these two forest tracts must, I believe, in the first instance be conducted by Government Agency. If this was found necessary for the commencement in Beejoragogurh, where circumstances were far more favourable, it will, I believe, be found indispensable in these two forests, where the difficulties of economical working will be great.

An improved plan for the cutting up and the carriage of timber in the Beejoragogurh Forests was, in March last, introduced by the Conservator of Forests, with reference to the consoltation we had on that subject on the spot; there will be no difficulty in placing matters on a similar footing in other forests.

The renewal of sleepers for the Nagpoor branch will, I fear, be a matter of extraordinary difficulty. The sleepers which I saw in March last collected at Nagpoor, or on their way from the forests, were mostly Saj, with some Hurdoo, and Kowah. They were much cracked, and the Saj sleepers contained a great deal of sapwood. Now, even under the most favourable circumstances, the durability of Saj is very uncertain. Many of these sleepers, if laid down,

will, I fear, have to be taken up in a few years, and what then? It may be possible to tide over this difficulty for a few years to come, by carefully husbanding the resources of the Deogurh and Sonawaree Forests to the north, and Dhaba and Mohrlee to the south, but ultimately unless iron sleepers are adopted, the Aheree and other Teak Forests near the Pranheeta river may have to be looked to as the main source for this branch of the Railway.

In other articles, the natural consequence of a supply insufficient to meet the demand is a corresponding rising in price. This seems not always to have been borne in mind in the case of Railway sleepers in India. The reason given is, that Government has undertaken the guarantee of the capital, and is at the same time owner of a large proportion of the Forests. I do not think that this argument holds good. If the duty on sleepers were raised to one Rupee four annas a piece, or Rs. 13-12 per ton in the Government Forests, other more distant sources in the Forests of Zemindars and other land-holders would be opened, and the supply would probably *increase* instead of diminishing, and the greater expense in the construction of the Railway would be below Rs. 2,000 per mile, a small fraction only on the total outly.

I think that in connection with the restrictions which must, for the sake of conservancy in new Railway sleeper contracts, be placed on the selection of trees to be felled, the rates of duty on this, and probably also on other timber, should be raised considerably.

In the draft rules proposed by me, I have retained the present figures, but have stated in a note that in any opinion the rates should at least be doubled.

The present rates stand as follows:—

			Rs.	A.	P.	
Sleepers at 3·4 cubic feet,	duty 4 annas or	...	3	12	0	per ton of 50 cubic feet.
Logs, Large 25	„ „	Rs. 2 .	4	0	0	„ „ „
„ Small 15	„ „	Rs. 1-8 ...	5	0	0	„ „ „

Double rates would raise the duty to Rs. 7-8 in the case of sleepers, and to Rs. 8 and 10 in the case of logs,—figures by no means high in a country so denuded of good timber, as the greater part of the Central Provinces is reported to be.

The preceeding remarks on the working of the forests may be condensed as follows:—Certain Reserved Forests which contain a good supply of timber, to be worked by Government Agency. The remainder of the forests which are not specially reserved as Government domains, may continue to be worked by contractors; the trees to be felled being selected and marked by Forest officers, and the rate of duty being raised.

It is here the place to draw attention to the necessity of carefully studying the qualities of the different kinds of timber growing in these forests. If the Forest Officers collected pieces, say 4 feet long and 9 inches square, from the heart-wood of the tree, cut after the timber is partially seasoned, and carefully marked with name and locality by punching or otherwise, valuable material would be gathered, which, after undergoing thorough seasoning, might be employed for comparative experiments, which, doubtless, could be made at the Arsenal at Nagpoor, or at Calcutta.

The qualities of most kinds are known in a general way, but series of comparative experiments, to determine their physical and mechanical qualities in a more exact manner would be valuable, and might serve to draw attention to certain kinds hitherto overlooked.

Establishments.

52. From the preceding remarks it will be apparent that the Forest Revenue of the Central Provinces will, for several years to come, be very slender. The utmost economy, therefore, will have to be used in the expenditure. The following is an abstract of the present scale of establishment as sanctioned by the Government of India:—

	Rs.
1.—Pay of Conservator	9,600
2.—Pay of Executive Officers	12,000
3.—Office Establishment	2,412
4.—Timber Depôt Establishment	1,620
5.—Forest Establishment	14,229
Total	39,861

In the Statement appended hereto (B) the sanctioned scale of Establishment is given at Rs. 38,820, including Rs. 10,059 on account of Officers' pay in the place of Rs. 12,000 since sanctioned, which brings the amount up to Rs. 39,861.

Captain Pearson, when revising the scale of establishment with me in March last, considered that, owing to the vast extent of the forests in the Central Provinces, a Native Assist-

ant on Rs. 150 per mensem would be required in addition to the European Officer, and that the Office Establishment should be increased by Rs. 50 per mensem. This would result in the following arrangements:—

	Rs.
1.—Pay of Conservator	9,600
2.—Pay of Executive Officers	13,800
3.—Office Establishment	3,012
4.—Timber Depôt Establishment	1,620
5.—Forest Establishment	11,829
Total	39,861

The Forest Establishment it was at the time proposed to arrange as follows:—

		Rs.	
1	European Gardener or Forester	150	per mensem.
5	Darogahs from Rs. 50 to 80	290	„
2	Jemadars „ 20 to 25	45	„
13	Duffadars „ 10 to 15	150	„
	Total Gardener and Rangers	635	„
	or ...	7,620	per annum.
	This would leave for Peons and Watchers the sum of	4,209	„
	Total ...	11,829	„

Assuming the average pay of Forest Watchers at Rs. 6 per mensem, and 10 square miles for each man, this would enable us to establish 200 square miles of Reserved Forest, still leaving Rs. 2,769 per annum for peons and other local subordinates to assist the Rangers in looking after forest tracts not placed on the footing of Reserved Forests.

I fully concur with the Conservator of Forests in thinking that, for the present, an additional Assistant is indispensable. I have shown that when the sleeper cutting in the Bijoragogurh Forests shall have been completed, work of a similar character will have to be arranged in the Deinwah Sâl Forests. This kind of work will take up the greater part of the time of an European Officer.

Regarding placing subordinate Forest Officers under District Officers for the management of the forests not at present demarcated as reserved, I would beg to repeat the suggestion of my letter of the 11th March, *viz.*, that the relative position of the local Forest Subordinates to the Deputy Commissioner and Conservator of Forests may advantageously be left to be arranged by these Officers in every instance, according to the merits of the case, reference being open to the Chief Commissioner. I would deprecate any rule precluding the exercise of a direct control on the part of the Conservator or his Assistants, over any portion of the local Forest Establishment.

Probable Financial Results.

53. The principal charges of the Department, for the next few years to come, will consist in—

1st.—Working of the Bijoragogurh, Deinwah, or other forests on Government account.
2nd.—Outlay for the establishment of reserved Government Forests.
3rd.—Establishment charges and contingencies.

The revenue will probably be realized mainly from the following sources:—

1st.—Sale of timber worked by Government Agency.
2nd.—Duty on timber brought out by Contractors.
3rd.—Miscellaneous Forest Revenue, Grazing duty, Minor Forest produce, &c.

The Establishment charges, contingencies, and minor items, are not likely to be much under Rs. 50,000 per annum. I fear that the whole of this amount is not likely to be covered by the miscellaneous revenue, and the duty on timber, estimated in 1863-64 to realize Rs. 12,700, and Rs 25,000. There will remain a deficit, which, together with the outlay on Reserved Forests must be covered by surplus of the sale of the timber worked by Government Agency, over the working charges.

It is clear that the favourable or unfavourable financial result of forest management in the Central Provinces will, for the next few years to come, mainly depend on the rate paid by the Railway and Public Departments for sleepers, and other timber prepared in the Bijoragogurh and other forests.

Generosity here would be suicidal, and deprive the forests of the means requisite to effect their gradual improvement.

Upon the whole, it cannot be said that the financial prospects of the forests in the Central Provinces are brilliant. It will require the greatest care for the next few years to come to make both ends meet.

Conclusion.

54. I have in the preceding paragraphs endeavoured to sketch the measures which appear to me necessary for carrying out the principle of Reserved Government Forests laid down in the Chief Commissioner's Circular of the 28th January 1863.

It is apparent that the process will be slow, and the first outlay will be great. But experience will doubtless show that the charges will be considerably lower than were estimated. The other alternative would be to attempt to preserve the whole of the Government Forests under general rules. This I consider would be a heavy task, with little reasonable hope of success.

To guard against failure of the present plan, a gradual introduction has been suggested, the remaining forests being, meanwhile, preserved to a certain extent, as far as the more valuable trees are concerned.

Under these circumstances, I do not apprehend any serious difference of opinion in matters of principle, but as circumstances have not permitted my preparing this report on the spot, with the oppportunity of discussing every point with the Chief Commissioner and Captain Pearson, there may be difference of opinion in matters of detail. On this account I would solicit an expression of the Chief Commissioner's views to be communicated to me to afford an opportunity of introducing such alterations in this paper as may appear necessary.

The circumstances which have delayed the submission of this Report are known to the Chief Commissioner, and I deeply regret the inconvenience which this delay must have caused in the Central Provinces.

A.—FOREST RULES.

I. The following Rules are published for the administration of the Government Reserved Forests in the Central Provinces, and for the management of Forests generally on all such lands on which Government has not ceded the right in Timber and Forest produce.

II. The Officers appointed for the administration of the Forests are—

1.—The Conservator of Forests.

2.—His Assistants.

3.—The Subordinate Officers, *viz.*, Darogahs, Zemindars, Duffadars, Forest Watchers, and Peons.

III. No person is permitted without the express sanction of Conservator or his Assistants to cut, fell, mark, girdle, or injure any tree or shrub, or bamboo whatever, or to collect any Mowah grass, raal or other forest produce within the limits of the tracts reserved by Government; the mode of disposing of the timber and other Forest produce of the reserved tracts will be fixed from time to time by the Conservator of Forests under the Chief Commissioner's sanction. In tracts thus reserved no land is to be sold, and no lease of land or forest to be given without the sanction in every instance of the Government of India. Villagers whose lands may be included in a Reserved Forest may continue to remain under such conditions as the Conservator of Forests and the Deputy Commissioner may determine, under approval of the Chief Commissioner.

IV. The boundaries of each reserved tract will be marked off by pillars or heaps of stones, and a descriptive statement of the boundaries will be deposited in the Office of the Deputy Commissioner of the District.

V. In all other forests to which these Rules apply, the cutting of trees and bamboos is free. The following trees only are excepted, *viz* Teak, Sheshum, Mowah, Saj, Beejasal Rohneah, Sâl, Kowah, Unjun, but to timber of all sorts felled previous to the promulgation of these Rules, the old rates of duty will apply.

VI. Cultivators requiring timber of the above eight kinds, with the exception of Teak and Sheshum for their own use in house or field, but not for sale or barter, must apply to the Tehseeldar of the District, who is authorized to give, free of duty or price, to each house-holder once in a year not more than trees in all of any of these kinds. Should this permission be abused for purposes of trade, the offending parties will render themselves liable to be prosecuted for fraud.

VII. Teak and Sheshum may be given under this Rule, with the written consent in each instance of the Conservator of Forests, or such Assistants as may be specially authorized by him.

VIII. Carpenters and petty traders, with requirements not exceeding twenty-five logs at one time, must apply to the Deputy Commissioner of the District, who will either give permission to fell the same, or withhold it wholly or in part; but Contractors or others with larger requirements must apply to the Forest Officers. On timber given under this Rule, duty will be levied at the rates noted in Section XI, or the Conservator of Forests will be at liberty to hold periodical sales of these kinds of timber, in which case, of course, no duty will be levied.

IX. No tree of the above-named eight kinds is to be felled, which under 4 feet in girth at three feet from the ground, except Sheshum, which may be felled when half the above grith, and all such trees are to be felled within one cubit from the ground to prevent waste. Officers authorized to give timber under this rule will be held responsible that it is duly explained to all parties to whom they may give permission.

X. No Dhya is to be cut in tracts reserved under Rule III, without the express permission of the Conservator of Forests, and no Dhya is to be cut in any place where any of the eight interdicted kinds of trees are growing without the permission, in every instance, of the Deputy Commissioner of the District, and permission shall, as a rule, be only given where Dhyas have been made as thus the previous 12 years.

XI. Until the reserved tracts are marked off, Deputy Commissioners will transmit to the Conservator of Forests monthly, a statement of all timber granted by them or their Tehseeldars under Rules VI, VII and VIII, and whether with or without payment, and this statement must exhibit the Dhyas permitted to be cut under Rule X.

XII. Until further orders, the rates of duty on timber will be as follows:—

On timber brought down the Nerbudda River to Jubbulpoor, duty will be levied at the old rates as fixed in the printed rules, dated 28th July 1862.

On timber at other places the rates will be as follows:—Railway sleepers of whatever timber, four annas per sleeper.

On all logs exceeding 18 feet in length, and 4½ feet in girth, Rs. 2 per log. On all logs below that length, Rs. 1-8 per log.

All persons transgressing any of the above rules, render themselves liable to be prosecuted for theft or mischief; and all timber given under these rules by Tehseeldars, Deputy Commissioners, or Forest Officers, whether on payment or otherwise, is given with the reservation that it is liable to be resumed and confiscated wherever found in case of a breach of the above rules by the parties to whom it has been given.

XIII. As a rule, all duty on timber is to be paid before the timber leaves the Forests; but the Conservator of Forests and Deputy Commissioners shall be at liberty to make special arrangements, at their discretion, regarding the time and place for levying the duty, provided always that the time given for payment shall not exceed one month.

D. BRANDIS,
Conservator of Forests, on Special Duty.

Kuttolie, 25th March, 1863.

I concur in these rules.

J. F. PEARSON,
Conservator of Forests, Jubbulpoor Division.

B.—ESTABLISHMENT.

			Rs.	Rs.	
1	Conservator		9,600		
2	Assistant ditto, at Rs. 500		12,000		
1	Native ditto, at „ 150		1,800		
				23,400	
	OFFICE.				
		Rs.			
1	Head Clerk	75			
1	Assistant ditto	30			
1	Native Doctor and Moonshee...	40			
1	Assistant	20			
1	Compounder	6			
4	Peons at Rs. 5	20			
			191		
2	Moonshees for Assistant, at Rs 20	40			
4	Peons, at Rs. 5	20			
			60		
			251	× 12 =	3,012
	FOREST ESTABLISHMENT				
1	Gardener	150			
1	Overseer	80			
1	Darogah, 1st class	80			
1	Ditto, 2nd class	60			
3	Ditto, 3rd class, at Rs 50	150			
1	Jemadar, 1st class	25			
2	Ditto, 2nd class, at Rs. 20	40			
4	Duffadars, 1st class, at Rs. 15	60			
9	Ditto, 2nd class, at Rs. 10	90			
15	Peons, at Rs. 5	75			
40	Watchers, at Rs. 5	200			
3	Malees, at Rs. 8	24			
		1,034	× 12 =		12,408
			Total ...		38,820*

Memo. of present sanctioned Establishment.

	Rs	A	P.
Direction	9 600	0	0
Office	2,412	0	0
Officers' Pay	10,959	0	0
Forest charges and Establishment	15,849	0	0
Total ...	38 820	0	0

CAMP KUTTOLIE,
25th March, 1863

J. H. PEARSON, *Capt.*,
Conservator of Forests

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District.	Gardener.	Overseer or Darogahs.		Jemadars.		Duffadars.		Peons.		Watchers.		Mallees.	Total.	
Saugor	150	..	...	...	...	...	1	5	5	25	3	24	204	
Dumoh	..	...	...	...	...	...	...	...	2	10	...	..	10	
Hosungabad	...	50	...	...	2	25	1	5	6	30	...	...	110	
Baitool	...	...	1	25	3	35	2	10	6	30	...	..	100	
													———	424
Jubbulpoor	...	80	1	20	...	...	6	30	1	5	..	...	135	
Mundlah	...	60	...	..	2	25	1	5	5	25	...	...	115	
Seonee	..	80	1	20	2	20	1	5	5	25	.	...	130	
Chindwarrah ...					2	25	..	..	6	30	..	...	75	
													———	435
Chanda...	...	50	...	...	1	10	1	5	2	10	...	...	75	
Sironcha	...	...	...	..	1	10	...	...	2	10	...	...	20	
													———	95
Bijoragogurh	..	50	...	...	...	...	2	10	...	...	..	...	60	
													———	60
Total ...	150	370	...	65	...	150	...	75	40	200	...	24		1,034

C.—REGISTER OF FOREST CASES BROUGHT BEFORE THE DISTRICT FOREST COURT.

QUARTER 18

NUMBER OF REGISTER.	NAME, RESIDENCE, AND OCCUPATION OF THE ACCUSED.	DATE AND LOCALITY WHEN AND WHERE THE OFFENCE WAS COMMITTED.	NATURE AND DESCRIPTION OF OFFENCE.	NATURE OF EVIDENCE.	DATE OF SENTENCE.	SENTENCE.	COMMUTATION OF SENTENCE.	REMARKS.

No. 1150 A, dated 30th October, 1863.

From—Lieut.-Col. A. Impey, R. E., *Secy. to Chief Commr., Central Provinces, in the P. W. Dept.,*

To—Conservator of Forests, British Burmah, on Special Duty.

I am directed to reply to your letter dated Nynee Tal, 7th instant, regarding the conservancy of forests in the Central Provinces, and to express to you the satisfaction with which the Officiating Chief Commissioner has perused your Report, and the general concurrence which he is prepared to give to the views and principles therein comprised.

2 The conservation of forests is, without doubt, a matter of primary importance in these Provinces, where the woods and the hills are scattered all over the country from end to end, and are frequently intermixed and interlaced with the plains, and with the tracts of cultivation and habitation. In the forests are contained vast resources of timber, which, if not conserved, will be speedily wasted and exhausted, but which, if conserved, will furnish a supply in part sufficient for uses of the present generation, and will generate a future supply of far greater abundance for the use of generations to come. Impressed with this view, the Officiating Chief Commissioner will always be ready to give his best attention to whatever may be proposed in furtherance of the conservancy of forests.

3. Now, the principles which are embodied in the present correspondence, and which have the Officiating Chief Commissioner's hearty concurrence, appear to be the following :—

1st.—The definite separation of forest or jungle tracts in which Government possess control, partial or entire, from those lands which are, or may be declared to be, private property.

2nd.—The division of those forest or jungle tracts in which Government have control, partial or entire, into, first, reserved forest tracts, and secondly, tracts under general forest conservancy.

3rd.—The strict demarcation of the reserved forest tracts to be placed specially under the management of the Forest Department.

4th.—The introduction into tracts under general conservancy, of a supervision and a management to be exercised by the ordinary Civil Authorities.

5th.—The application of the penal provisions of the law, respecting trespass, mischief, or theft, to offences affecting the welfare of the forests, either in the reserved tracts or in the tracts under general conservancy.

6th.—The application of the general rules regarding forest conservancy to those extensive regions which, in these Provinces, are known by the local name of Zemindaries.

7th.—The promulgation from time to time, and the strict enforcement, of such practical rules as may conduce to the perfect development and to the profitable use of all timber that may be grown in the Forests under Government control, whether special or general.

4. Now, the Officiating Chief Commissioner considers, that there ought to be no difficulty in carrying out each and all of these principles ; and that, if they are really carried out, the main objects of forest conservation will be attained.

5. Such, then, being the main principles, I am now to proceed to examine the various details, which the Officiating Chief Commissioner has considered in consultation with the Conservator, Captain Pearson. For this purpose it will be desirable to follow each paragraph of your Report *seriatim*.

6. In paras. 1 to 3 of your letter you have briefly recapitulated what has been done in the way of forest conservancy hitherto.

7. In para. 4 you state—

1st.—That you consider that the tracts, as at first proposed to be set apart for special forest reserves, are not sufficiently numerous or extensive. The Officiating Chief Commissioner is prepared to admit this, and observes that the list of these tracts has been subsequently amended and extended.

2nd.—You object to the power of allowing Contractors to fell timber being deputed to District Officers, as also the power of giving permission for the cutting of teak and sheshum, also of small teak ; you also think that all timber granted by them should be reported once a month to the Conservator of Forests. To all these points the Officiating Chief Commissioner is willing to agree,

3rd —You urge that the injurious effects of Dhya cultivation are not sufficiently guarded against. This subject will be adverted to hereafter. I am, however, to take the earliest opportunity of observing, that this matter requires cautious and considerate treatment. Mr. Temple is willing to check its increase, and to reduce it within such limits as may be consistent with the wants of the Hill people ; but he can never consent to disregard thier wants, or to sacrifice the comfort of the people to the welfare even of the forests. But, in reality, he hopes to so manage as to render both objects compatible with each, and to restrict the Dhya cultivation moderately, without distressing the Hill people. On this point I am to com-

mend to your consideration an extract, para. 382, from Mr. Temple's last Administration Report, which, for facility of reference, is appended to this letter.

4th.—You deprecate any rule which would give the Deputy Commissioners direct control over any portion of the Forest Department, except with the sanction of the Conservator. In this the Officiating Chief Commissioner entirely concurs. But he trusts that you will see no objection to Forest Officials being deputed by the Conservator to act under orders of District Officers for special purposes. Such officials can do this without any prejudice to their departmental independence.

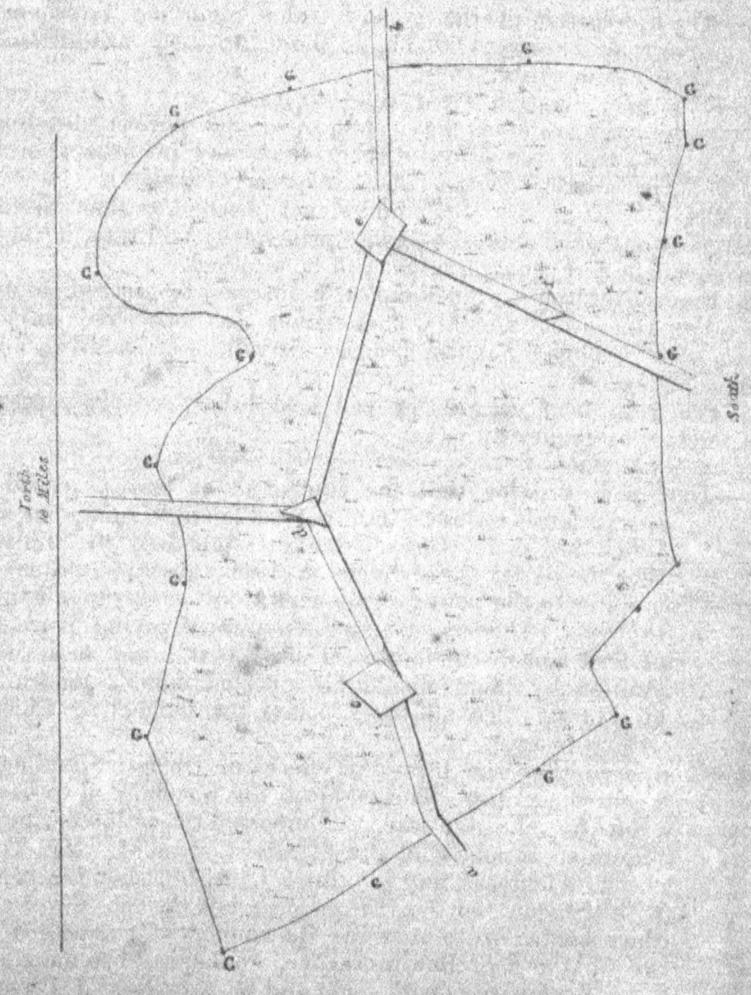
8. In para. 5 you have correctly recapitulated the five different descriptions of forest land in the Central Provinces.

9. By your para. 6 you have introduced the proposed Forest Rules. On these I am directed by the Officiating Chief Commissioner to offer the following remarks :—

10. Rule I.—In this and other rules, the words "it shall be lawful" appear to the Officiating Chief Commissioner to go somewhat beyond the requirements of the case. No authority (save the Legislature) can use these words. "It will be in the power," or some such other term, may be used appropriately.

11. Rule II requires no remark.

12. Rule III, in which you provide for the demarcation of Government Reserved Forest tracts.—The Officiating Chief Commissioner apprehends that it will be, in many cases, necessary to include, within the boundaries of these tracts, such villages as may include either permanent cultivation or else grazing ground, and the like, on which private rights will be found to exist. In these cases it will be necessary to surround each village with a ring fence, setting apart sufficient forest for purposes of Dhya cultivation and other domestic uses of the people. It will also be necessary to preserve a right of way from village to village, and also from each village to convenient points in the external limits of the reserved tract. In some cases also, the regular roads of the country pass through the tracts. In all these cases a clear right of way must be preserved; but all useless foot-paths and short cuts will be stopped up. The accompanying diagram may be taken in illustration :—



Let *a*—*b* be a reserved tract, surrounded by boundary pillars G G; and *c d e f* all be villages within it, surrounded by a ring fence, containing an area of, say, 500 acres each; then *c* must

have free egress out of the reserved tract *direct* towards the west; towards the east through *d* and *e*; towards the north through *d*; and towards the south through *d e f*; this is absolutely necessary; but an inhabitant of *c* will not be permitted to find exit either to the north or south by cutting off the angle formed by the road. In like manner the inhabitants of the other villages will have to follow a similar rule.

13. Rule IV.—In the preliminary remarks to this rule the question is raised, whether the sections of the Penal Code regarding mischief can be made applicable to persons setting fire to the jungle. The Judicial Commissioner has given his opinion that, if persons destroy or damage timber in Government Reserved Forests, or in forests in which Government possesses any right of property or control, whether complete or partial, they will certainly be liable to prosecution, either for theft or mischief. Many cases will come under the definition in the Penal Code of *theft*. Thus, under the Code there may be theft without any fraudulent intent. Many cases of breaches of Forest Rules also under criminal trespass, Section 441 of the Code.

Mr. Temple also observes that, under Section 425 of the Code, it is not essential to the offence of mischief that there should be an intention to commit wrongful loss or damage. It is sufficient that there should be *knowledge* that loss or damage is *likely to be caused*. Every case of the kind must be decided on its own merits. If guilty intention or knowledge be proved, then the charge of mischief may be properly made. This will apply either without or within the Government Reserved Forests to all tracts in which Government have any right of property or control.

14. In a Government Reserved Forest, the difficulty will be less of obtaining proof. But in any case where the interests of Government are concerned, and even in the case of lands which are the acknowledged property of private individuals, the Magistrate of the district might legally take cognizance of mischief committed, even without any complaint being made by the proprietor. He could do this under Section 68 of the Criminal Procedure Code, which allows him to take cognizance of any offence which "may come to his knowledge without complaint being made." Rule IV will require some modification in compliance with the above remarks.

15. Rule V.—The Officiating Chief Commissioner is of opinion that there can be no necessity for Rule V. This rule provides that no Government Forest should be sold, and no lease of land given, without the sanction of the Government of India. This is already provided for in the Waste Land Rules, whereby all such lands will be notified and published in the Gazette as not being saleable. Moreover, it appears to the Officiating Chief Commissioner that the authority of this Administration will suffice for all questions of this nature. A copy of the Waste Land Rules is appended for your information.

16. Rule VI relates to the duty of watchers and others in charge of reserved tracts. It will require some modification. "He will seize axes, other tools, cattle, &c.," is clearly unauthorized by law, and, as you are aware, would require special legislation.

17. Rule VII refers to the demarcation of reserved tracts. The remarks on Rule III apply to this rule also.

18. Rule VIII refers to the working of the timber in the Reserved Forests by a regular system of rotation. All this is unobjectionable, except the last clause, which entails a reference to the Government of India in certain cases.

Mr. Temple considers that, in matters of pure detail, it must be the province of the Local Administration to decide.

19. Rule VIII*a* provides for the conservancy of forests, the clearance of which would be injurious to the public interests. It is believed that this rule cannot be legally enforced in cases where the grant *has been admitted to be private property*, and its purchase at double the rates paid under the Waste Land Rules would be clearly impossible. The Government or the Local Administration may, indeed, say that a certain forest is required to be taken up for public purposes, and may take possession of it under Act VI of 1857, but in no other way. Practically, this rule will probably not be requisite in the Central Provinces.

20. Rule IX provides against the felling in all other Government Forests of (1) Teak, (2) Sheshum, (3) Sal, (4) Saj (5) Kowah, (6) Beejasal, (7) Unjun, (8) Rohun, (9) Mowah, (10) Tinus. In the prohibition of the first six, Mr. Temple concurs. But he trusts that Tinus may absolutely be relinquished, as it is the wood most of all in demand by the agricultural population for farm purposes. Also he believes that it is not really necessary to include Unjun and Rohun. These woods are not of great importance, and it is an object to reduce the list as much as possible. As regards Mowah, the people are not likely to cut it of their own accord. Therefore the Officiating Chief Commissioner does not object to its being prohibited, though he doubts whether this is really necessary.

21. On the other hand, the Officiating Chief Commissioner earnestly would deprecate the list being enlarged. To allow of this would be to ensure the popular discontent and alarm which he observed himself as having been caused by the former rules. Discontent of this nature is more easily excited than would generally be supposed, and, if not relieved

might be more serious than those who do not know the people would readily imagine. It is possible that hereafter, if a better general supply of wood is produced by the effects of conservancy, a larger field may be embraced in its operations. Besides the increase of work caused, an extension of the prohibition could only be met by a large increase of establishment. Some arrangement may be made for the conservation of Khair for the manufacture of Catechu in Forests where that is carried on,

22. Rules X and XI empower Tehsildars to give 10 trees of the restricted kinds for their own use to cultivators; but in the case of Teak and Sheshum, require the consent of the Forest Officer. Rule XII empowers Deputy Commissioners to grant 25 trees of the restricted sorts to carpenters and petty traders. The above three rules have the Officiating Chief Commissioner's entire approval.

23. Rules XIII, XIV and XV refer—

1st.—To the size of the trees to be felled under the preceding three rules, under the authority of the Civil Officer. This entails the necessity of marking the trees.

2ndly.—To the practice of Dhyâ cultivation, where the interdicted kinds of timber exist, which must only be done with the consent of the Deputy Commissioner.

3rdly.—Requires a return to be sent to the Forest Department of all timber so granted and Dhyas so permitted to be cut.

24. Now all the above provisions are most desirable, and have the Officiating Chief Commissioner's entire concurrence. But he does not perceive that any provision is made for establishments to ensure their being carried out. The District Officers and Tehsildars have their own regular work to do, which occupies the greater part of their time. Although they can render aid in Forest conservancy, (which aid they can afford more efficiently than any one else,) still they are precluded from devoting *much* of their time to Forest affairs. Again these Officers are generally stationed at too great a distance from the Forest tracts to take a direct personal share in their management, or to receive applications direct from the inhabitants of such remote tracts. But the Deputy Commissioners and the Tehsildars may very properly supervise subordinate officials acting under their orders in the Forest tracts. Such officials should certainly belong to the Forest Department. They should not be appointed by the Deputy Commissioners. Fit persons would not easily be found outside the Forest Department, and the Deputy Commissioner would be obliged to employ men of inferior status and training. If the work of forest tending were left to untrained or untrustworthy officials, the result would be either the evation or neglect of the provisions of the rules, or else, perhaps, the occurrence of oppression and corruption. To meet this requirement, Mr. Temple is most decidedly of opinion that it is absolutely necessary to place in each district, or nearly so, a Forest Darogah, who would be appointed and paid by the Forest Department, but who would be *pro tempore* deputed by the Conservator to act under the orders of the District Officer entirely. It would be the duty of such Darogah to carry out the provisions of these rules, and to draw up these returns. It is desirable that his services, if faithfully rendered, should be well paid; and that his appointment resting in the Forest Department, he should be entitled to rise in it by a regular succession of grades. The Officiating Chief Commissioner is convinced that if these appointments rested with the District Officers, there would not be fit candidates forthcoming, and that some hanger-on of the Kutcherry, who had failed in every other line, would unavoidably be appointed. Such an one would be the very last man to whom these duties should be entrusted, and in such a case nothing but corruption and oppression could be expected as the result. Mr. Temple considers that a well paid and thoroughly respectable agency is absolutely essential, both for protecting the people and for carrying out the object in view. To restrict the evil effects of Dhya cultivation is of the utmost importance. But when it is remembered that a not inconsiderable section of the population in these provinces earn their subsistence entirely by cutting and burning the jungle for the purpose of this cultivation, it will be evident that any injudicious or hasty measure, with reference to it, might lead to the most serious results. And if any severe oppression or gross corruption were to occur, than additional aggravations and complications would arise.

25. Darogahs, such as those above described, would probably be required in the following Districts:—

1. Saugor.	6. Chindwara.
2. Jubbulpoor.	7. Seonee.
8. Mundlah.	8.. Nagpoor.
4. Hoshungabad.	9. Chandah.
5. Baitool.	10. Raepoor.

If their pay averaged Rs. 50 each per mensem, it would amount to an extra expenditure of Rs. 6,000 per annum,—an outlay which is really requisite for the protection of the large, indeed vast, interests concerned.

26. It is quite impossible that the regular Forest Darogahs should attend to this work, as only six are allowed for the whole province, and their time will be amply taken up in looking after the reserved tracts and other work proper of the Forests.

27. With reference to Rule XIV, I am to observe that in many parts of the country the leaves of the Saj tree are cut for feeding young buffaloe calves, and also for feeding the Tussa silk-worm. There are many places where stunted and pollard Saj trees exist, which may be used for these purposes. A clause might be added to Rule XIV, empowering the Deputy Commissioners to grant such permission where it will not interfere with Saj trees that are calculated to yield timber.

28. In the note after Rule XV, you discuss the question as to whether village forest tracts should be at the disposal of the villages to which they belong without being left subject to the Forest Regulations. The Officiating Chief Commissioner is of opinion that, as a general rule, the Forests tracts included at the regular settlement within the area of villages *may* be left entirely at the disposal of the villages to which they belong. This will probably be the simplest and fairest course. Nor will it involve any sacrifice of Forest interests, for the rules now sanctioned by Government, (of which a copy will be in your possession,) regarding demarcation of excess waste-lands, will effectually prevent the villagers and landholders from appropriating more land than what they are equitably entitled to. A clause in the Administration Paper of the settlement might indeed empower Government to resume the right over the timber on such localities, at any time or anywhere, that it may appear desirable to do so. The Officiating Chief Commissioner does not, however, deem this to be necessary, while, on the other hand, it is open to objection ; and, on the whole, he would prefer to omit it.

29. The Officiating Chief Commissioner also concurs with the opinion expressed in this note, that all felling operations, conducted on a large scale by Contractors and others, should be entirely under the supervision of the Forest Department.

30. Rules XVI and XVII refer to the rates of duty and the manner of levying the same. You here propose—

1st.—That the timber brought down to Goaree Ghât, on the Nurbudda, near Jubbulpoor, shall be charged as at present,

2nd.—That Railway sleepers be charged 4 annas each ; logs exceeding 18 feet in length and 4½ feet girth, Rs. 2 ; all logs below this size, Rs. 1½.

Subsequently, in para. 51, you propose to double these rates, and to charge all sleepers at the rate of Rs. 1-4 each. The Officiating Chief Commissioner entirely concurs in the propriety of this enhanced rate ; but as regards sleepers, this new rate ought not to affect contracts previously made, provided such contracts are completed within the originally stipulated period. Moreover, due notice should be given to the contractors of the intention to raise the rate in future.

31. The objection lies not so much in the extra cost of constructing the Railway, which would fall for the most part on the contractors, but any delay in the completion of it would cause an immense loss to Government in the matter of the guarantee. All existing contracts will have expired by 1st of January 1865, and as all sleepers for the actual construction of the line should be out of the jungle by that date, it will certainly be most advisable to put the more stringent rules and the enhanced rate of duty in force for the sleepers cut for its renewal and repair. In this way no objection can be raised on the score of delaying the early completion of the line, which is most essential, both in a commercial and political point of view.

32. On any sleeper contracts hereafter given, then, the enhanced rate may be charged ; also, from the commencement of 1865, on all logs taken from the jungles.

33. Rule XVIII refers to the investing of Forest Officers with the powers of a subordinate Magistrate. According to the interpretation put on the law, for "Chief Commissioner," read "Local Government," the rule seems hardly necessary, because the Government can always invest *any one* with any of the powers of a Magistrate, and as no *á priori* rule can bind the Government in its selection of persons for the exercise of magisterial powers.

33½. Rule XIX properly warns people transgressing any of these rules that they will be liable to penal consequences.

34. Rule XX provides for the holding "Forest District Courts." This is, as you are aware, impossible under the existing law, and there might be difficulty in respect to special legislation. All cases that occur must, according to the present law, be disposed of under the ordinary criminal procedure. It does not appear that any serious inconvenience will be caused hereby, and therefore a sufficient necessity for fresh legislation could hardly be shown. If the Forest Assistants are invested with magisterial powers, offenders can generally either be taken before them or the nearest Tehsildar who holds such powers. If it be the case (as the Officiating Chief Commissioner believes it is the case) that all offences against the forests (so far as they are justly punishable at all) can be punished under the existing laws and procedure, then it is to be expected that the legislature would hesitate in making fresh enactments. Moreover, it would probably be held that the infliction of penalties for forest offences, should be ordered by the ordinary and regular authorities, who order penalties for all other offences, rather than by a separate agency, who might regard the cases from an administrative rather than a judicial point of view. And thence it would be argued, as being more consonant with justice, that forest offences should be dealt with under the ordinary law by the ordinary machinery, rather than under special law by special machinery. Then,

as to the provision of officers for administering the law, the matter would be partly a question of expense. It would not be practicable for the magisterial authorities to make circuits for the express purpose of trying offences against the forests; but, on the other hand, the offenders could be sent in to the nearest Courts. Nor does the Officiating Chief Commissioner apprehend that the Magistrates would be found unreasonably averse to convicting or punishing offenders. If this were to be the case, it would be the duty of this administration to see that the magistracy acted up to the law.

35. Rule XXI provides for the investing of forest subordinates with Police powers. This rule could not stand exactly in its present form. But Forest Officers, when necessary, might be regularly enrolled as Police Officers under Act V of 1861.

36. On the whole, it appears to the Officiating Chief Commissioner that special legislation will not be necessary for carrying out the provisions of the above rules, provided they are modified as suggested. Most of the offences clearly come under the definition of theft, mischief, or trespass in the Penal Code, and can be punished as such. The Judicial Commissioner, who has been consulted, concurs with the Officiating Chief Commissioner in this view. But every case must be taken upon its own merits; and in such cases especially as that of a conflagration being caused in a reserved forest, by setting fire to the grass in the vicinity, the culpability must greatly depend on the intention or the knowledge with which the act was committed, and on how far it may have been accidental. It must be remembered that the jungle tribes cannot be prevented from lighting fires altogether to cook their food, and especially to protect themselves from wild beasts, and their intelligence in foreseeing the consequence of their acts is very low, lower indeed than those who do not know these people would readily imagine. The chief protection to the reserved tracts from fire must mainly depend on the possibility of keeping fire out of them by surrounding them with a carefully cleared belt five or six yards broad. Within these limits, of course, no fire will be allowed. On the whole, the best way will be carefully to collect and collate the reports of all breaches of the Forest Rules; and thus, by gradually collecting information on the subject, true conclusions in time may be arrived at, and well devised measures may be adopted for enlightening the Gonds on these subjects.

37. Paras. 11 and 12 refer to the selection and management of Government Forest Reserves, in all your suggestions regarding which the Officiating Chief Commissioner entirely concurs.

38. Para. 13 relates to immunity from prescriptive rights within the Government Reserved Forests. The only remark called for here, seems to be that a right of way must be ensured to the villages within the tract, as laid down in the remarks on Rule III.

39. Paras. 14 regarding boundary marks of reserved tracts, and 15 regarding the duties of Forest Watchers, call for no comment.

40. Para. 16 refers to special powers for Forest Watchers. It does not seem expedient or necessary, under present circumstances, to grant extraordinary powers to persons of this class. Hereafter, as before noticed, they may, perhaps, be enrolled as Policemen. They must only use their arms in self-defence; but they must certainly be allowed to carry arms; indeed, if only for the destruction of wild animals, they should be encouraged to do so.

41. Paras. 17 and 18 are intended to obviate the Forest Watchers being drawn away from their posts for the purpose of proceeding against offenders before the Magistrate. As before explained, special legislation for such Forest District Courts would be hardly necessary. If necessary, one or two supernumerary watchers might be at the disposal of each Darogah or Ranger, to supply the place of men so taken away. As stated by you, it would be impossible in this country to attach any superior weight to the evidence, before Courts of Justice, of Forest Subordinates over that of ordinary individuals.

42. Para. 19 refers to the position of Forest Watchers and its possible improvement. Para. 20 to the protection of the Reserved Forest tracts from fire. Para. 21 to cattle grazing in the Reserved Forests. Para. 22 to public notices of reservation of any forest. Para. 23 to the works necessary for the improvement of the forest reserved tracts. Para. 24 to the working of the Reserved Forests, their revenue, and cost of demarcation. In all the above paragraphs the Officiating Chief Commissioner heartily concurs.

43. With reference to paras 25 and 26, regarding the management of Village Forests, I am directed to observe that in no case will any shifting or transitory proprietary rights be given to any persons in the forest wastes. It is intended that, at the settlement, all forests or other waste, to which either villages or individuals can establish a just claim, shall be definitely marked off. In cases where no proprietary right is established, but small shifting settlements of Gonds and other forest tribes are permitted in the forests, they must be made to conform to the Forest Rules, as above laid down. Of course, such locations will not be permitted in the Reserved Forests, and no person can possibly acquire any inferior proprietary right of any description within their boundaries. On this head there need be no apprehension. Before a tract is declared to be reserved, all claims to it will have been disposed of, and it will have been adjudged to be Government property. Then it will be made over to the Forest Department; thereafter, that Department will see that no new rights arise. As before

observed, the Officiating Chief Commissioner conceives with you that, as a general rule, it will be better to permit the forests within village boundaries to be entirely free from the forest restrictions.

44. In para. 27 you refer to the conservation of certain forests for climatic and other purposes. The observations of the Officiating Chief Commissioner on this head have already been conveyed to you in the remarks on Rule VIIIA.

45. Para. 28 refers to the forests under Zemindaree lands. The Officiating Chief Commissioner has already proposed a set of tentative rules, tending to protect, as far as seems advisable, the timber in these forests.

46. The draft of lease as proposed by you has been referred to the Judicial Commissioner, and will, in that officer's opinion, require modification; and it will, indeed, be necessary to frame a lease suited to each particular case. The Officiating Chief Commissioner entirely concurs in the advisability of acquiring, if possible, a reasonable control over valuable forests like those of Aheree and Bhopalputnum (on the Godavery) by lease or otherwise. But it must be borne in mind that, in the present day, forests will not be obtained by speculators on terms as easy as those on which the forests of Aheree and Bhopalputnum were obtained 12 years ago. The Officiating Chief Commissioner agrees with you that any plan involving the payment of seignorage on each tree would not answer. The best plan probably would be to endeavour to induce the Zemindar to agree to a division of the profits. But in the case of the Delakeree Sal Forest, the Zemindar entirely refused any terms except full profits, and it is believed in most cases this would be insisted on by them. In that affair, the best terms were made, which were practicable under the circumstances.

47. Para. 29 relates to the management of forests other than those above treated of; in fact, all Forest wastes, which are neither reserved tracts nor grants to individuals, nor village forests, nor Zemindaree lands. On these remarks, the Officiating Chief Commissioner has no observation to make, except that he concurs in them.

48. Para. 30 refers to classification of trees.
„ 31, valuation surveys.
„ 32, selection of trees for felling.
„ 33, thinning.
„ 34, clearing of creepers.
„ 35, protection from fire.
„ 36, protection from cattle.

All relate to matters of a purely technical character; regarding which you are the best possible judge, and require no remark.

49. Paras. 37 to 49 inclusive, refer to the tracts proposed to be converted into Government reserves. To all these, the Officiating Chief Commissioner accords his entire concurrence, as well as to your observations regarding them. It only repairs necessary to make the following brief remarks:—

50. 1*st*, *Saugor Division.*—In Dumoh, Mr. Temple knows that there exist some patches of teak near the Bearmee River, and also south-east of Dumoh near Sigrambore, which though of small extent, and too much mixed up with cultivation to form regular reserves, should be looked after, and, perhaps, may be treated more as plantations. The same may be said of the patches of Teak in the Saugor District, especially in the Bunda Tehseelee.

51. 2*nd*.—In Baitool, you express a doubt as to whether, in all instances, tracts consisting entirely of good soil have been selected. I am to observe that the Officiating Chief Commissioner fully admits that the tracts selected do contain both bad and good soil. But as the Teak really flourishes only in the narrow ravines and well shaded places, there appears to be no option except to take the whole block of hills which form the Teak producing tract, and of which Bowergurh and Jamgurh are the culminating points, which tracts must needs comprise diversities of soil. Or else, to cut them up into innumerable sub-divisions, the preservation of which would be very difficult. The Conservator of Forests appears to be under the impression that you advised him strongly not to attempt any such division.

52. 3*rd*.—As regards the Deinwah or Delakeree Sal Forest, it is feared that no benefit except economy of resources will result from its reservation. That in itself is a sufficient result, and more could not be obtained without coercing the Zemindar. It was indeed difficult to obtain even this much. The question is not so much what will, in the abstract, be profitable to Government; but rather what could, in justice and in view to the public interest, be obtained from the Zemindar.

53. 4*th*.—With reference to the Doongurtal Forest in Seonee, I am to remark that this will only form, as it were a semi-reserve, with a view to the supply of firewood and small timber to Nagpoor and Kamptee. The expense will not be great for this tract. Special arrangements will be made for marking off the Teak where it exists, and separating it from the rest of the forests.

54. *5th.*—Captain Glasfurd, Deputy Commissioner of Sironcha, has been directed to examine the lease of the Aheree Teak Forest, and to report what measures appear practicable, with reference to the legality of interference with the lease, and to preserve this fine forest until the present lease has expired.

55. *6th.*—The Beejoragogurh Forests are not strictly within the Civil Jurisdiction of the Central Provinces; but the Conservator has addressed the Superintendent of Nagode, under whose control the Beejoragogurh District has been placed, on the subject of forming a Reserved Forest there.

56. Para. 51 refers to the future supply of sleepers to the Railways of the Central Provinces. You state that "existing contracts must be allowed to run out, but new contracts should be concluded on the distinct understanding that no trees but those marked by Forest Officers should be felled." You also recommend that the duty on sleepers should be raised to Rs. 1-4 each sleeper. Mr. Temple entirely concurs in the enforcement of both these provisions in all future contracts, on the distinct understanding that present contracts, if completed within the time allowed, be not interfered with. The early completion of the Railway is a matter of national importance; and, as it is believed nearly all the timber for sleepers is already felled, any interference now might only lead to delay. Moreover, it would not be fair on the contractors, who have generally sublet their contracts on the understanding that they would have to pay certain rates.

57. Para. 52 relates to the establishments of the Forest Department for the Central Provinces. The Officiating Chief Commissioner has before stated his opinion that there should be a well paid Forest Official at the disposal of each District Officer, if the conservancy measures, very properly contemplated by you, are to be efficiently carried out. Mr. Temple also observes that the Forest Establishment has been reduced, as compared with existing rates, from Rs. 15,849 per annum to Rs. 12,408 per annum; and, considering that a much higher standard of conservancy is looked for, and all trees are to be marked before they are felled, it is difficult to see, with reference to the vast area of country to be covered, how all these ends are to be carried out efficiently with a diminished staff. Mr. Temple observes that Baitool, for instance, which is one of the most important Forest Districts, is left without a Darogah in the new scheme.

58. With reference to your concluding para., in which you state that the financial prospects of the forests of the Central Provinces for some years to come do not appear brilliant, and must mainly depend on the rates paid by the Railway and Public Departments for timber, the Officiating Chief Commissioner entirely concurs, but he confidently expects that the present cost of caring for the forests will amply be re-paid in the end; and, after all, it must be borne in mind, that money is not now paid by Government Departments, who are one of the best customers of the forests, but that the sum is now adjusted by mere transfer on paper, and therefore to a certain extent that the financial result as it appears, in hard cash received from non-official parties, must be a fallacious one. No doubt in the end, Government will gain more than any other party in the Forest Conservancy. In fine, the Returns from the outlay on Forest Conservancy must be *prospective* and not immediate. Our timber, now young or undeveloped, is cared for on account of the *future*. So long as we are sure that our efforts are really conducing to the storing and to the husbanding of such a mighty resource, Mr. Temple, for one, will not regret such moderate expenditure as may be necessary in the present. Nothing, indeed, would be easier than to show an *apparent* financial result by reducing establishments (and thus diminishing protection), and by cutting down timber indiscriminately for the market. This would, however, be a fatal economy, and would sacrifice the very result which we are now aiming at. After consulting the Conservator, the Officiating Chief Commissioner considers that Rs. 17,000 per annum for regular Establishment,
and " 6,000 „ District Darogahs,

Vide Note attached to this letter.

in all Rs. 23,000, will be positively needed.

59. In conclusion, Mr. Temple does not apprehend that there is any thing in these remarks of his which need delay or interfere with the final submission of your Report to Government.

60. I am to conclude by expressing to you Mr. Temple's acknowledgments of the great benefit which the Forest Department here, and the general cause of Forest Conservancy in these Provinces, have derived from your late visit to Nagpoor.

Extract para. 382 *from the Administration Report of the Central Provinces for the year* 1862-63, *by* R. TEMPLE, Esq., *Officiating Chief Commissioner.*

One great cause of wastage and destruction of the forests is what is called "Dhya" cultivation. Much was said and written on this peculiar cultivation, and some have supposed that it ought to be stopped altogether. It may therefore, be desirable that I should explain the matter. This "Dhya" cultivation is practically a substitute for ploughing, and a device for saving the trouble of that operation. It is resorted to by Hill people, who are averse to labour, and have little or

The Dhya cultivation.

no agricultural capital. The method is in this wise :—A piece of ground on a moderate slope is selected, clothed with trees, brushwood, and grass, the trees are cut down in November, the brushwood and grass are set fire to in May, the charred ground is left covered with ashes ; in the beginning of June quantities of seed are placed at the upper end of the slope, the rains descending wash the seed over and into the prepared ground. No ploughing or any other operation is resorted to. There springs up a plentiful crop, which has to be watched all day and night till it is cut. If not so watched, it would be eaten up by wild animals. In this manner all the pulses are raised. Besides this culture, there will be a few fields around the homesteads regularly ploughed and growing superior products. The pulses, however, form the staple food of the Hill people in four districts,* and in many parts of districts adjacent to them. The population dependent mainly on Dhya cultivation is between one and two millions. Now, it is unfortunate that the best ground for this peculiar cultivation is precisely that where the finest timber trees like to grow. The damage thus done during ages is incalculable ; but to stop this cultivation *now* would be a serious, indeed a lamentable, undertaking. It may be hoped that, by degrees, these Hill people will learn a better mode of cultivation. But to prohibit the Dhya cultivation altogether would be to drive this widely scattered population to despair. Though rude and ignorant, they are not destitute of spirit and endurance ; they have clans and chiefs ; they are always predatory ; and they have, on occasions, shown themselves capable of armed resistance. If, by a prohibition of their favourite culture they were reduced to any distress, they would resort to plunder, and especially to cattle stealing. And it is to be remembered that the great pasturage whither the cattle from the plain-districts resort, is situated in their country. Perhaps even they might resort to a sort of rebellion. And if they fled the country, the last state of the forests would be worse than the first. For, then, the traces of human habitation, settlement, and clearance would disappear. The foresters and the woodmen could no longer live in, or even enter into, the wilderness, rank and malarious, with uncleared jungle, and overrun with wild beasts. These animals are already so destructive as to constitute a real difficulty. The only check upon their becoming masters of the forests, is the presence of the Hill Tribes. Inasmuch, then, as the entire prohibition of Dhya is out of the question, the problem is how to check its extension without distressing the Hill people. It *is* possible to keep the culture within certain limits, to prevent new ground being taken up by it, and to restrict it to those spots where it has previously existed. In this manner further damage can be prevented. And it is to *this* object alone that our present efforts are directed.

* Mundlah, Seonee, Chindwara, and Baitool.

The best mode of limiting it.

CENTRAL PROVINCES.

SALE OF WASTE LANDS.

Rule I.—All unassessed waste lands in which no right of proprietorship or exclusive occupancy is known to exist, or to have existed, and to be capable of revival, are available for purchase under these Rules, unless specially reserved under Rule XIX.

Rule II.—The maximum limits of the quantity of land which will, for the present, be sold in one lot in the several districts of the Central Provinces, will be as mentioned below :—

1.	Raepoor District		
2.	Belaspoor „		
3.	Mundlah „	5,000	acres.
4.	Sumbulpoor „		
5.	Upper Godavery District		
6.	Hoshungabad „		
7.	Nagpoor District		
8.	Chandah „	3,000	acres.
9.	Bhundara „		
10.	Wurdah „		
11.	Jubbulpoor „		
12.	Nursingpoor „		
13.	Chindwarah „	3,000	acres.
14.	Seonee „		
15.	Saugor „		
16.	Baitool „		
17.	Dumoh „		

If, for special reasons, in particular localities, lower maximum areas should be determined upon, due notice will be given.

Supplement.—There is no prohibition against the same person applying for two or more lots of land, provided that each application comprises no more than the maximum of acres prescribed for the district or locality in which the said lots are situated.

Rule III.—Every lot shall be compact, and shall include no more than one tract of land in a ring fence. No lot will be sold unless previously surveyed and demarcated. The survey need only be in sufficient detail to ensure the ready identification of the boundaries of the lot, and to ascertain its gross area. If, on completion of the survey, it shall appear that the area of the lot applied for exceeds the prescribed maximum, the excess shall be excluded.

Supplement.—If it should appear, from the survey or otherwise, that the application does not comply with these conditions, the Deputy Commissioner may call for an amended application, and, in the event of a revised application not being given in within 15 days, the application shall be held to be cancelled, and the deposit made under Rule VI and its supplement, shall be returned to the applicant, less the amount of expense actually incurred for advertisement, survey, and the like.

Rule IV.—Applications for the purchase of waste land shall be made to the Deputy Commissioner of the district, and every application shall contain the following particulars :—

1st.—The estimated area of the land applied for.

2nd.—The situation of the land and its boundaries, as accurately as can be ascertained.

Rule V.—If the Deputy Commissioner is able to satisfy himself that the land applied for, is available for purchase under Rule I, and within the conditions prescribed in Rules II and III, and if the land shall have been previously surveyed and demarcated, he shall advertise the lot for sale on a given day at an upset price, as hereinafter specified. The advertisement shall be published in both the English language and the Vernacular of the district, in the Deputy Commissioner's Office, in the Offices of the Tehsildars of the district, and in the Police Station, within the limits of which the land may be situated.

Supplement.—An advertisement shall also be published in the Central Provinces' Gazette. The form of advertisement will be hereafter prescribed.

Rule VI.—If the Deputy Commissioner be satisfied as above, and if the land have not been surveyed, he shall cause it to be surveyed, and its boundaries demarcated, the estimated cost of such survey and demarcation being first deposited by the applicant. On the completion of the survey, the advertisement of sale shall be published as above.

Supplement.—The sum to be deposited will include the estimated cost of clearing the boundaries for survey; but it is not, under any circumstances, to exceed 4 annas an acre.

Rule VII.—The day of sale, to be named in the advertisement, shall not be less than 30 days from the date of publication of the advertisement of sale in the Office of the Deputy Commissioner. The sale shall be held at the Deputy Commissioner's Office. The sale may be postponed, if, in the Deputy Commissioner's judgment, it be necessary,—due notice being always given of the date on which the sale will be held.

Rule VIII.—If before the day of sale no claim of proprietary or occupative right in the land be preferred, the lot shall be sold by auction to the highest bidder above the upset price, or to the applicant at the upset price if there be no higher bid.

Supplement.—If the Deputy Commissioner think it necessary, he may refuse to recognize any bid which is not supported by the deposit of the amount required by Rule XVII. Immediately a sale is made, it shall be entered in a Register in a form to be hereafter prescribed.

Rule IX.—The upset price of the lands to be sold will, ordinarily, be as follows ; but in special cases the Deputy Commissioner, with the sanction of the Commissioner, may put a higher upset price on any lot, provided that in no case shall the upset price exceed four times the ordinary rates :—

(1.) In the Raepoor, Belaspoor, and Mundlah Districts, 8 annas per acre.
(2.) In the Sumbulpoor and Upper Godavery Districts, Re. 1 per acre.
(3.) In the Hoshungabad, Nagpoor, Chandah, Bhundarah, Wurdah, Jubbulpoor, Nursingpoor, Chindwarah, Seonee, Saugor, Baitool, and Dumoh Districts, Rs. 2-8 per acre.

The upset price will be calculated on the whole area of the lot, without any deduction on any account whatever.

Supplement.—In considering the upset price to be fixed in special cases, Deputy Commissioners will not overlook the value of the trees on the land applied for.

Rule X.—On payment of one-tenth of the purchase money, and of all expenses of survey, demarcation, advertisement, and sale, the purchaser shall receive a deed (in a form which will hereafter be issued by the Chief Commissioner) signed by the Deputy Commissioner, conveying to him the lot in full hereditary and transferable proprietary right, free for ever from all demand on account of Land Revenue, but subject, nevertheless, to all general taxes and local rates imposed by Law or by the Local Government, and to any other claim, whether of the Government or otherwise, that may have been, or may hereafter be, established in any Court of competent jurisdiction.

Rule XI.—If before the day of sale a claim of proprietary or occupative right in any part of the land be preferred, the Deputy Commissioner shall investigate the claim ; and, if satisfied that it is groundless, shall reject it and proceed with the sale.

Rule XII.—If, on investigation, any such claim should appear to be well-grounded, the Deputy Commissioner may either reject the application for purchase of the lands, or refer it for the orders of the Commissioner. In the former case, the applicant may appeal to the Commissioner.

Rule XIII.—The Commissioner may direct the Deputy Commissioner either to reject the application or to proceed with the sale of the land, either unreservedly, or on the conditions prescribed in Rule X; or if any claim to right of proprietorship, occupancy, or use in any part of the lands be established, to the satisfaction of the Commissioner, with a special reservation of such right, or exclusive of the area in which such right exists. If the application for purchase of the land be rejected, the amount deposited as cost of survey, after deduction of any expenses which may have been incurred in survey, demarcation advertisement, or any other way incident to the transaction, will be forfeited or refunded, as the Deputy Commissioner may direct, according to the circumstances of the case.

Rule XIV.—On being put in possession of the lot, the purchaser shall be bound to erect as many substantial boundary marks of masonry as the Deputy Commissioner may think necessary, provided it be not made incumbent on the purchaser to erect more than at the rate of four marks per mile of boundary line.

Rule XV.—If the land be purchased by any person other than the applicant, the estimated cost of the survey deposited by the applicant under Rule VI shall be returned to him, and the actual cost of survey and demarcation shall be charged against the purchaser in addition to the price of the land.

Rule XVI.—The purchaser may, if he choose, pay the whole of the purchase money when the lot is sold, or the deed delivered to him; or, if he choose, he may pay a portion, not being less than 10 per cent, at the time of sale, and the remainder in instalments at any future time, not being more than 10 years from the date of sale. In the latter case, simple interest, at the rate of 10 per cent. a year, will be charged on the unpaid portion of the purchase money, and the whole lot will remain hypothecated as security for the full discharge of the amount, including principal and interest, and be liable to sale by order of the Deputy Commissioner if the said amount of either principal or interest be not paid within the stipulated period. Should such sale take place, the defaulter will have no claim for improvements against the Government, or on any other account, except for the one-tenth of the purchase money paid; and for that only in the event of the amount realized at the second sale at least equaling the amount of the original sale, plus any interest due to Government by the original purchaser on the unpaid portion of the purchase money.

Supplement.—The interest due for any year or part of a year under this Rule shall be payable on or before the 15th of May, and if the amount be not paid on that date, the Deputy Commissioner may realise the amount by sale of the lot under the Rules in force at the time being for the sale of estates on account of arrears of Revenue due from other estates. Any balance of the purchase money, which may not have been paid up before the 15th of May of the tenth year following that of the sale, may be realised in the same manner as an arrear of interest outstanding on that date. The proceeds of the sale shall be applied, in the first instance, to the payment of the costs of sale and to the satisfaction of the demand of Government; the surplus shall be payable to the late registered proprietor or proprietors on their joint receipt.

Rule XVII.—If the purchaser fails to pay one-tenth of the purchase money and all other expenses within three months from the day of sale, the lot will be put up to sale again on the same conditions as before, and sold at the risk of the first purchaser, whose deposit will also be forfeited.

Rule XVIII.—No sale of waste lands once made by a Deputy Commissioner, in conformity with these Rules, will be disturbed by any higher executive authority; but all such sales shall be immediately reported to the Supreme Government.

Rule XIX.—Reserves of grazing and forest land; of land for the growth of firewood near towns and stations; of building sites, parks, recreation grounds; of tracts possessing mineral wealth, stone quarries, and the like; and of land required for other special purposes, are not to be sold under these Rules without the express sanction of the Chief Commissioner. A list of these lands is under preparation, and will be published hereafter in the Calcutta Gazette.

Rule XX—Lands, for the purchase of which application has been made under the Resolution of the 17th October 1861, will, if such application were duly registered, be dealt with in accordance with the terms of the said Resolution so far as the law allows.

Rule XXI.—From and after the date of the promulgation of these Rules, no fresh applications for grants of waste lands under any previous Rules will be entertained.

Rule XXII.—The Rules relating to the disposal of claims to land, for the purchase of which application may be made, will be subject to the provisions of any law which may hereafter be passed for regulating the disposal of such claims.

Rule XXIII.—The above Rules will continue in force for two years from the 1st January 1863.

Supplement.—Rule XXIV.—If it should, at any time, be found that the same land has been included in more than one lot, it shall be held to belong to the lot first sold, and all subsequent sales shall, as regards such land, be null and void. In the event of any dispute regarding the boundary of two or more adjoining lots, the Deputy Commissioner may, on the application of any one of the parties, re-adjust the boundaries of the lots, and his decision will be final. The price paid by any subsequent purchaser for land thus excluded from his lot, will be refunded to him with simple interest at 10 per cent. The sum to be refunded will be calculated on the average price paid per acre, excluding the cost of survey and advertisement.

No. 303, dated 28th October 1863.

Memorandum—By Capt. G. F. Pearson, *Conservator of Forests.*

With reference to para. 52 of the Report, dated 7th October 1863, by Dr. Brandis, on the Forests in the Central Provinces, on mature consideration, I fear it is not possible to carry on the executive work of the Forests as required in his Report, which entails a very high standard of conservature with the establishment there allowed.

2. At present the sanctioned scale stand as follows:—

	Per annum. Rs.
1 Conservator	9,600
2 Assistant Conservators, at Rs. 500	12,000
Office Establishment, at Rs. 231	2,772
Executive Forest Establishment, at Rs. 1,420	17,040
Total ...	41,412

3. I myself went into the question of a revised scale of Establishment with Dr. Brandis, and, regarding the pay of the Conservator, Assistant Conservators, and Office, as well as the necessity for having another Assistant, I am entirely content to accept the scale of Establishment we then agreed upon, with reference to the work now looked for from the Department; but I do not think it possible to carry out the work with the Executive Establishment allowed.

4. The present Forest Establishment, as sanctioned for the Saugor and Nerbudda Territories, together with Chindwara and Beejaragogurh, consists as follows:—

		Rs.	
6	Darogahs on Rs. 80 each ...	480	... Vide Extract from Government of India No. 13590, dated 15th November 1861.
1	Darogah „ 50 ...	50	... Government letter No. 1019, dated 31st January 1861.
2	Jemadars „ 25 each ...	50	... Vide Extract from Government No. 13590.
1	Jemadar „ 20 ...	20	.. Vide letter from Secretary to Chief Commissioner, No. 424, dated 9th July 1862.
1	Maistry „ 25 ...	25	.. Vide Extract from Government No 13590.
3	Road Darogahs on Rs. 25 each...	75	„ „ „
5	Duffadars at „ 15 „ ...	75	„ „ „
10	„ „ 10 „ ...	100	„ „ „
2	„ „ 10 „ ...	20	... Vide letter No. 424 of 1862.
1	Duffadar „ 10 ...	10	... Government letter No. 1019 of 1861.
90	Peons at „ 5 each ..	450	... Vide Extract from Government No. 13590.
4	„ „ 5 „ ...	20	. Government letter No. 1019 of 1861.
9	„ „ 5 „ ...	45	... Vide letters No. 424, dated 9th July 1862, and No. 6, dated 28th November 1862.
	Total ...	1,420	

Now, the services of some of these men are not wanted now, as, for instance, the Maistry and Road Darogahs; on the other hand, it is proposed to obtain two European gardeners on a salary of Rs. 300 a month. Moreover, I have to provide some Establishment for Chanda, Sironcha, and Raepoor, and I feel I cannot carry on the work in Baitool without a Darogah for that district. In fact, I am sure the work urgently calls for the services of a Darogah, there being a large quantity of timber on hand there still, besides the work connected with the experimental sleepers which are being prepared there, and the supervision of the Railway Contractors. I am sure this would come to a dead lock without a Darogah, for the present at all events.

5. I have as yet never worked up to the full sanctioned rate of Establishment; indeed, by economizing the pay of some of the subordinates, and not paying them at the full rate sanctioned, I have kept the cost considerably under the sanctioned sum, my Budget-Estimate for establishment for 1863-64 being Rs. 15,849 or Rs 1,320 per mensem, while the full rate sanctioned is Rs 1,420 per mensem.

6 I do not consider, even providing for all the above charges, together with a Darogah for Baitool, (which I feel absolutely requisite,) that the total sum, as at present sanctioned, (*viz.*, Rs. 1,420 per mensem,) for Forest Establishments, need be exceeded; but when it is remembered that it is proposed to mark every tree that is felled, I do not think I can effect all this work with so few men as are proposed in the scale of establishment which I made out with Dr. Brandis. It must be also borne in mind over how vast an area of country our operations extend.

7. I would propose, therefore, to distribute the monthly charge of Rs. 1,420 per mensem as follows :—

		Rs.
2	Gardeners, at Rs 150 each	300
2	Overseers or Rangers, at Rs. 80 each, 1st Class	160
1	Ditto 2nd „	60
3	Ditto at Rs. 50 each, 3rd „	150
4	Sub-Rangers, or Jemadars, at Rs. 25 to 20 each	95
18	Assistant ditto or Duffadars „ Rs. 15 to 10 „	205
4	Gardeners (Native), at Rs. 8 to 7 each	30
20	Watchers for reserved tracts, at Rs. 6 „	120
60	Peons, at Rs. 5 each	300
	Total ...	1,420
	or for 12 months, Rs. ...	17,040

This would include the establishment for the Goaree Ghât Timber Depôt.

For the same work Dr. Brandis allows annually Rs. 13,449.

The excess of Rs. 3,591 is made up as follows :—

		Rs.
1	Extra European Gardener	150
1	„ Darogah	50
3	Duffadars	30
14	Peons, Mallees, &c, ...	70
	Total ...	300
	or for 12 months, Rs. ...	3,600

8. The officiating Chief Commissioner proposes to add 10 Darogahs for special work under the District Officers, at a charge of Rs. 6,000 per annum. The whole establishment would then stand as follows :—

		Rs.
1	Conservator, Rs. 800	9,600
	Pay of Executive Offiers, 1,150	13,800
	Office Establishment, Rs. 251	3,012
	Forest „ „ 1,420	17,040
	Darogahs attached to the Civil Department, Rs. 500 ...	6,000
	Total ...	49,452

Dated 16th November, 1863

From—Dr. D Brandis, *Conservator of Forests, on Special Duty,*

To—Secretary to Chief Commissioner, Central Provinces, P. W. Dept.

I have the honour to acknowledge your letter of the 30th ultimo, conveying the Chief Commissioner's views on my Report. With reference to the concluding para., I will at once submit my Report to Government, but I would suggest, that, if not yet done, *the new scale of establishment, and the new Forest Rules, be simultaneously proposed for the sanction of*

Government. Regarding the Forest establishment, I fully recognize the necessity for a staff of subordinate Officers, to be appointed by the Conservator and to be placed by him at the disposal of District Officers, for the management of the forests under general rules.

2. With reference to the Forest Rules, the following remarks may be useful to prevent misconception. I understand that the Chief Commissioner does not consider special regulation necessary at present, and desires the rules to be framed in strict accordance with the existing laws. I concur in the expediency of this course, although I believe that some time hence special legislation may be requisite.

3. With regard to the different kinds of timber to be interdicted, I am inclined to include Tinus *(Oojeinia dalbergioides)* because it is generally used. I fear it will perish altogether, or at least the supply will be seriously diminished, unless the cutting is placed under restriction. Some provision in the rules to prevent the indiscriminate cutting of *khair* (Acacia Catechu) would also be a great advantage. As regards the leaves of Saj for fodder, I hope the supply from village forests will suffice: if not, certain tracts might be assigned by the Deputy Commissioners,—the tracts to be fixed, pending the confirmation of the Conservator of Forests.

4. In the rule fixing the rates of duty, I would suggest that the present rates be entered as in force until the last January 1863, and the new rates to commence after that date. This would be a good mode of giving public notice of the change. I was under the impression, that all sleeper contracts were for the year only, and would expire on the first January 1864. I trust that no more trees will be felled by sleeper Contractors after the close of this year without selection by Forest Officers. The indiscriminate felling of most large trees on the Satpoora range has been a serious disadvantage.

5. I fear that my suggestion regarding Forest District Courts has not been understood; perhaps I did not express myself clearly. I do not contemplate any *separate agency*, requiring special rules of procedure to be settled by legislation. I believe the Tehsildars, or other subordinate Magistrate, hold their Court in different parts of their district, as circumstances may require. All I wanted was, that certain subordinate Courts should hold periodical sittings, at stated times, and at suitable localities near the forests.

6. A remark in para. 58 of your letter is new to me, that Government Departments do not pay money for timber supplied them, but that the sums are adjusted by a mere transfer on paper. Would it not be expedient to alter this practice, and to introduce cash payments, or payments by transfer receipts? I believe this practice is now adopted almost everywhere in dealings of public Departments with each other.

No. 10, dated 15th February, 1864.

From—Dr. D. Brandis, *Conservator of Forests, on Special Duty,*
To—*Secretary to Chief Commissioner, Central Provinces.*

With reference to your letter No. 1150 A, dated 30th October, I have the honour to submit a fresh draft of Forest Rules for the Central Provinces. I was not able to submit them earlier, as I was only lately furnished with a copy of my Report to you, dated 7th October.

2. In the present draft of rules, I have introduced all alterations desired by the Chief Commissioner, with the exception of those in Rules V and VIII.

I do not feel justfied in recommending the omission of Rule V. The forest rules are intended as a safeguard for the maintenance of the forests under all circumstances, and I think it necessary to include a provision against the alienation of any of the Reserved Forests, independently of the waste land sale rules. The same remark applies to the objection to the last passage of Rule VII. Permits or other arrangements for the sale of the standing timber in remote forests, difficult of access, are, unless carefully watched, liable to lead to a weakening of the Forest rights of the State, and some caution appears called for.

3. In Rule IX I have, in compliance with the Chief Commissioner's wishes, left out "*Tinus*" *(Oojeinia dalbergioides)*. I trust that the other kinds will be retained in the list of prohibited trees. If we could at once establish a sufficient extent of Reserved Forests throughout the country, the second part of the rules, which is the most cumbersome, might be altogether dispensed with. But this is clearly impracticable, and on that account, the protection of the more valuable trees throughout the country becomes a necessity. With reference to the Chief Commissioner's remark, regarding the conservation of Khair *(Acacia Catechu)* a partial prohibition in certain districts may be useful.

4. In Rules X and XVII I have introduced some additions.

5. I would suggest that these rules be now submitted to the Government of India for early sanction, with such remarks and additional proposals as the Chief Commissioner may see fit to make.

Mr. Temple did not consider special legislation necessary at present for the management of the forests in the Central Provinces, and in deference to his views, I have endeavoured to eliminate from the present rules all provisions which would require special legislation, although, I believe, that at a period not far distant this will be found necessary.

DRAFT FOREST RULES FOR THE CENTRAL PROVINCES.

Rule I.—The following Rules are published for the administration of the Government Reserved Forests, and for the management of forests generally in the Central Provinces, on all lands whereon Government has not ceded the right in timber and forest produce. It will be in the power of the Chief Commissioner, subject to confirmation by the Government of India, to exempt from these rules, forest lands made over to villages or individuals, at the time of settlement, and other forest lands in special cases.

Rule II.—The Officers appointed for the administration of the forests are—

1st.—The Conservator of Forests.

2nd.—His Assistants.

3rd.—The subordinate Forest Officers; *viz.*, Darogahs, Jemadars, Duffadars, Forest Watchers, and Peons.

It will also be the duty of all Police Officers to watch the observance of these rules, and to afford every assistance to the forest officers in the exercise of their duties.

The Chief Commissioner may appoint any Deputy Commissioner, Tehsildar, or other district Officer, to have charge of certain forest tracts, but such officers will, in all forest matters, be subject to the control of the Conservator of Forests.

Rule III.—Certain tracts of forest or waste land will be reserved as the exclusive property of the State Such waste or forest lands will be termed Government Reserved Forests. Unauthorized felling, cutting, marking, killing, or injuring of trees shrubs, or bamboos, or the collection of mowah, grass, raal, or other forest produce, within the limits of the Government Reserved Forests, or any act which violates the rights of the State, as the proprietor of these forest lands, will be punished under the provisions of the Penal Code. Dhya cultivation, the grazing of cattle, and interference of any kind with the ground or its products, without the special permission of the officers in charge of the Government Reserved Forests, is prohibited. The right of using existing roads, through the Government Reserved Forests, will be free, if compatible with the Conservancy of the Forest. But the Conservator of Forests, with the sanction of the Chief Commissioner, shall be at liberty to close any existing roads through the forests, whenever he may deem it requisite to do so.

Rule IV.—Within the limits of a Government Reserved Forest, it is prohibited to light fires without permission, to burn charcoal, or to commit any act, which may cause a conflagration in the said forest, and persons who light fires in the neighbourhood of any Government Reserved Forest, or who commit any act that may cause conflagration, are warned that they must take proper precautions against the spreading of the fire.

Regarding the burning of grass and jungle, on lands not included in any private estate, or in any Government Reserved Forest, it will be the duty of the Deputy Commissioner of the District, subject to confirmation by the Commissioner, to make such rules as he may deem requisite for the prevention of damage to the forests under the control of Government.

Rule V.—In the Government Reserved Forests no land is to be sold, no lease of land or forest is to be given, without the sanction, in every instance, of the Government of India.

Rule VI.—There will be a subordinate Forest Officer in charge of every Government Reserved Forest. He must live within or close to the forest. He will be expected to be thoroughly acquainted with every part of the forest, and with whatever happens therein. In cases of unauthorized felling or other breach of the forest rules, it will be his duty to report the occurrence immediately. It will further be his duty to prevent, by all means in his power, the continuance or repetition of the acts constituting the breach. He will seize all wood or other forest produce, unlawfully cut or removed, which he may find in the forests. He will use every lawful means for the preservation of the property entrusted to his charge. He will be held responsible that no trees are felled, except those selected by the Conservator, or his Assistants.

Rule VII.—The boundaries of each Government Reserved Forest will be marked off by masonry pillars boundary stones, or such other boundary marks, as the Chief Commissioner may direct. Where the boundary is not a high road, the bed of a river, or other line easily traced, the pillars must be at each angle; and on straight lines, they must not be more than one thousand yards apart. A proclamation must be issued and published in the six nearest villages within a month of the demarcation of the forest, stating, in a general way, the boundaries of the forest, and warning against trespass, theft, or mischief. It shall, ordinarily, be the duty of the Deputy Commissioner of the District to issue this proclamation. A copy, with a descriptive statement of the boundaries of each Government Reserved Forest, and a map, showing its situation, is to be deposited in the Office of the Deputy Commissioner of the District.

The officer in charge of a Government Reserved Forest, or any part of a Government Reserved Forest, must, once a month, go along the whole of his boundary lines, and state in his report the state of the boundary lines and boundary marks; where there is no natural

boundary line, a path, at least 6 feet wide, must be cleared through the jungle along the whole of the boundary line. It is the duty of the officer in charge of a Government Reserved Forest to report immediately every encroachment on the boundaries of his forest.

If villages be surrounded on all sides by a Government Reserved Forest, the boundaries around their lands must be demarcated in the same manner as the boundaries of a Government Forest, or if the villages be merely temporary settlements, they may be allowed to remain for a period not exceeding three years, under such conditions as the Conservator of Forests and the Deputy Commissioner of the District may determine, under approval of the Chief Commissioner. But no cultivation, by clearing or burning the jungle, is, on any account, to be permitted within the boundaries of a Government Reserved Forest.

Rule VIII.—In the Government Reserved Forests, no tree shall be felled, which have not been marked by the Conservator or one of his Assistants, or which are not included in the tract set apart for felling. The selection of the trees to be felled, or of the tracts where felling operations are to be carried on, must be made according to a certain plan laid down every year by the Conservator of Forests. Regarding the removal and the disposal by sale of the timber marked for felling and other forest produce, the Chief Commissioner will, from time to time, issue such orders as may, after hearing the Conservator of Forests, appear to be desirable; provided, that arrangements for the sale of the standing timber in the forests, binding the Government for a longer period than two years, are not made without the sanction of the Government of India.

Rule IX.—Outside of the Government Reserved Forests, as described in Rules III to VIII, the Chief Commissioner may prohibit the clearing of any forest land, or such a management of the same, as will cause a deterioration of the forest, if he has reason to believe that the deterioration or clearance of the forest may have an injurious effect on the fertility of the neighbouring lands, or that it may cause the diminution of springs, irregular inundations, the spread of shifting sands, or other injury to the public. And it will be in the power of the Chief Commissioner to place forests, the protection of which is required in the public interests, under the management of the Forest Department.

Rule X.—In all other forests to which these rules apply, the cutting of the following kinds of trees is prohibited, and the Chief Commissioner may, at any time, add any other kinds to this list:—

1. Teak.	6. Beejasal.
2. Sheshum.	7. Unjun.
3. Sal.	8. Rohun.
4. Saj.	9. Mowah.
5. Kowah.	

All other trees and bamboos may be cut by cultivators for their own use in house or field; but if required to be cut for purposes of trade or export, application must, in every instance, be made to the Conservator of Forests or the Assistant in charge of the Forest Division.

Rule XI.—Cultivators requiring timber of the above-named prohibited kinds for their own use in house or field, but not for sale or barter, must apply to the Tehsildar of the District, who is authorized, if he deems it advisable, to give free of duty or price to each householder, once a year, not more than ten trees in all, of any of these kinds, Teak or Sheshum excepted. These trees must, in every instance, be marked by a person deputed by the Tehsildar on purpose. Should this permission be abused for purposes of trade, the offending parties will render themselves liable to be punished for fraud. The Deputy Commissioner of the District may give permission to cultivators of certain villages to collect the leaves of stunted and pollarded Saj trees for the feeding of cattle or silkworms; such permission shall be in force for one year only. The date on which such permission shall be granted and renewed will be determined by the Conservator of Forests.

Rule XII.—Teak and Sheshum may only be given under the preceding rules with the written consent, in every instance, of the Conservator of Forests, or the Assistant in charge of the Forest Division.

Rule XIII.—Carpenters and petty traders may obtain from the Deputy Commissioner of the District, once a year, not more than 25 trees of the different kinds enumerated in Rule X, Teak and Sheshum excepted. These trees must be marked in the manner prescribed in Rule XI. Persons with larger requirements must apply to the Forest Officers. On all timber given under this rule, duty will be levied at the rates noted in Rule XVII. But the Conservator of Forests may direct sales to be held from time to time of timber of the interdicted kinds, in which case no duty will be levied beyond the purchase money.

Rule XIV.—No tree of the above-named nine kinds is to be felled which is under 4 feet in girth, measured at 6 feet from the ground. The officers who are authorized to grant timber under this rule will be held responsible for its due observance; and all trees are to be felled within one cubit of the ground to prevent waste. All timber given under Rules XI, XII, and XIII, whether on payment or gratuitously, is given with the reservation that, in case of a breach of the above rules by the receiving parties, it is liable to be resumed and confiscated wherever found within the forest.

Rule XV.—No Dhya is to be cut in any place where any of the nine interdicted kinds are growing, without the permission, in every instance, of the Deputy Commissioner in charge of the District.

Rule XVI.—Until further orders, all Depnty Commissioners will transmit to the Conservator of Forests a monthly statement of all timber granted by them and their Tehsildars under these rules, of all Dhyas permitted to be cut under Rule XV, and of all permissions granted to villages for the collection of the leaves of the Saj tree. This statement must show the amount of duty realized on all timber thus granted.

Rule XVII.—Until the 1st January 1865, or until further notice, the rates of seigniorage or duty on timber will be as follows :—

1st.—On timber brought down the Nerbudda River to Jubbulpoor, duty will be levied at the old rates as fixed in the published rules, dated 28th July 1862.

2nd.—On timber at other places the rates will be as follow :—

Fire-wood, of whatever kind, Re. 1 per cart-load on ordinary jungle roads, and Re. 1-8 on pucka roads.

Railway sleepers, of whatever timber, 4 annas per sleeper.

On all logs exceeding 18 feet in length, and 4½ feet in girth, Rs. 2 per log. On all logs below that size, Rs. 1-8 per log.

After the 1st January 1865, the above rates will be doubled.

Rule XVIII.—As a rule, all duty on timber is to be paid before it leaves the forest, but the Conservator of Forests and the Deputy Commissioners are at liberty to make special arrangements regarding the time and place for levying the duty, but in no instance shall the time given for payment exceed one month after the date of removal of the timber from the forest.

Rule XIX.—The Chief Commissioner may invest the Conservator of Forests and any of his Assistants with the powers of a subordinate Magistrate. These powers to be exercised under such limitations as the Chief Commissioner may, from time to time, prescribe.

Rule XX.—All persons transgressing any of these rules are hereby warned that they render themselves liable to confiscation of timber (under Rule XIV), and to prosecution under the Penal Code, according to the circumstances of the case.

Rule XXI.—The Chief Commissioner may direct that any subordinate Forest Officer in charge of a Government Reserved Forest, or of a portion of a Government Forest, be enrolled as a Police Officer, so as to enable him more efficiently to prevent breaches of these rules, to discover offenders, and to obtain evidence for their conviction.

FOREST RULES.

Dated 28th July, 1862.

Teak and Sheshum are forbidden to be cut, except by the Forest Department or under special permission of the Superintendent.

2. The following trees are also forbidden to be cut for purposes of trade or merchandise without distinct permission of the Superintendent or his Assistants, *viz.*, Saj, Hurdoo, Beejasal, Dahmun, Rohneah, Surrye or Sal, Kowah, Dhyan, Unjun, Sissoo or Tinas, Goorhar, Jumrassee, Tendoo, Dowrah, Lendya, and any trees which the Superintendent may think fit from to time to add to this list.

3. But the ryots are permitted for their own use in house or field, but not for sale or merchandize, directly or indirectly, to cut a moderate quantity, not exceeding one cart-load of any jungle timber; Teak and Sheshum always excepted, without application to any body.

4. If more is required, application must be made to the Assistant Superintendents through the Darogah of the Zillah, and duty will be charged.

5. It is distinctly declared that the Forest Department will not be answerable for the supply of timber to any of the Public Departments, except on requisitions made at least nine months previous to the timber being required.

6. Contractors and others who require a large amount of timber must apply to the Superintendent, who will arrange with them as may be expedient. Minor details may be arranged with the Assistants.

7. As a general rule, no two parties will be allowed to cut timber in the same locality, and no permission to any contractor will be considered as extending beyond one year, with three months extra for removal of timber. The permission will, however, be renewable by the Superintendent.

8. The Superintendent is empowered at any time to stop a contractor's work in the forests, if the Government duty is not regularly paid, or for disobedience of the Forest Rules.

9. Contractors are required to notify to the Superintendent, or his Assistants, before they commence removing timber from the forest, in order that he may arrange for counting or measuring it; and to forward, at the close of each month, a return of the timber so removed, in order that the Superintendent may check the accounts of his subordinates and prevent disputes.

10. As a general rule, all accounts of contractors with the Forest Department will be settled monthly.

11. The Superintendent will fix a minimum girth of trees for the contractors to fell, and he and his Assistants are empowered to fine the contractor or other person twice the value (as fixed by them) of any tree which they may find felled in contravention of this order. As a general rule, such girth is fixed at 2 cubits (or 3 feet,) at 3 feet from the ground. And the Superintendent is also authorized to impose such other detailed conditions on contractors with regard to the manner of felling timber as he may deem necessary, for the purpose of economising and preventing waste of the resources of the forests; subjecting the contractors to the same penalty in case of non-fulfilment.

12. No permission will ever be granted to fell timber for purposes of speculation.

13. Carpenters and other traders who require wood must apply regularly to the Assistants, and they will have to pay duty.

14. But no one need pay any duty on any pretence to any Native official of the Forest Department except under the purwana of the Superintendent or his Assistants. This rule does not apply to the Goaree Ghât Custom House.

15. The resumption of the forests by Government gives no right to outsiders to cut jungle bullies, fire-wood, bamboos, grass, &c., on land of any malgoozars without permission, except where this right existed herotofore; and malgoozars of jungle villages are allowed to charge, where the right to do so previously existed, a sum not exceeding from two to four pice per cart-load for fire-wood, &c., so removed.

16. The timber on Jagheer and Oobaree lands is free, and is not chargeable with duty, nor are these lands subject to the forest rules.

17. The cutting of Dhyas, or Bewahs, by the Gonds, Bygars, Bohmeeahs, Koorkoos, and other hill tribes, has been a source of great injury to the forests. It must be held, as a general rule, the contravention of which cannot be passed over without punishment, that no Dhya or Bewah be cut in any place where it has not been cut within the last 12 years, nor where any good timber trees exist, nor where Teak flourishes. Timber trees and Teak trees, generally, must be spared in cutting the Dhyas. The Forest Officers should take avery opportunity of explaining this rule to the people, and impressing it on their mind in a judicious manner.

18. The following rates of duty are fixed by Government; they are, however, liable to revision. On all sleepers of whatever timber, if received by the Railway Engineers as such, 4 annas per sleeper; but, if perferred by the owners, sleepers may be always charged as timber.

The rates for timber are as follows:—

On ordinary jungle roads, per 2-bullock cart—

Sheshum and Ebony	...	2	Rupees per cart-load.
Teak and Sissoo	...	1½	do do.
All other sorts of wood	...	1	do do.

with an additional 8 annas for every extra bullock in the cart.

On pucka roads *half as much again* will be charged as the above.

If cubic measurement be preferred, the following rates to be charged:—

Sheshum and Ebony	...	2	annas per cubic foot.
Teak and Sissoo	...	1½	do do.
All other timbers	...	1	do do.

Salee, Semul, Gooloo and such refuse will be considered fire-wood and not charged.

Loppings of Teak trees will be charged half rates "per cart-load."

Loppings of other trees will be considered as fire-wood.

Railway Contractors, however, and others requiring a very large amount of timber, will be allowed to have all timbers at the same rate.

19. The decision of the Superintendent to be final, subject to an appeal to the Government of the Central Provinces.

20. A breach of the Forest Rules is punishable by a Magistrate under the regulations as a misdemeanour, or disobedience of orders on the part of land-holders.

21. Rules Nos. 1, 2, 3, 4, 12, 13, 14, 15, 16, 17, 18, 19, 20 are to be translated, and copies in Hindee and Persian are to be lithographed and circulated as widely as possible.

By order of the Chief Commissioner, Central Provinces.

DRAFT FOREST RULES,

Dated 28th January, 1863.

No. $\frac{1}{109}$, dated 28th January, 1863.

From—LIEUT. COL. HARLEY MAXWELL, *Secretary to Chief Commissioner, P. W. D.,*
To—*All Commissioners of Divisions.*

It appears to the Chief Commissioner that the present system for the conservancy of the forests, while successful in some respects, has not altogether availed with regard to some of the purposes for which it was intended, partly from the rules not being thoroughly understood by the district Officers, and partly through an entire misconception of their intention by the people in general. As you are aware that the Forest restrictions, real or supposed, have been made a frequent subject of complaint by persons of all classes to the Chief Commissioner, I am now to express to you the opinion of the Officiatihg Chief Commissioner so far as he is yet informed, and to request that you will submit an early report on the subject, bearing the following principles in mind.

2. Now the objects to be kept in view in Forest conservancy in these districts should be as follows:—

1st.—To ensure a liberal supply of timber for agricultural and other purposes free of duty to the poorer classes in general.

2nd. But, at the same time, to preserve from wanton felling and indiscriminate waste the better sorts of timber trees, such as are suitable for the public works, the Railway, and private individuals who are able to pay for the same.

3rd.—To utilize the timber so preserved by allowing all classes access to it, on payment of a moderate tax, and within certain reasonable restrictions, as, unless this is done, it appears to the Chief Commissioner that the general style of house architecture throughout the country is liable to become materially deteriorated.

3. To this end, the Chief Commissioner has caused a set of rules to be framed, which are now forwarded to you for report.

4. It is in the first place, therefore, proposed to place the enforcement of the Forest Rules under the district Officers, to whom all applications to fell timber of the interdicted descriptions will be made, except in a few reserved tracts (detailed in the annexed document) which will remain under the Forest Department. This arrangement will at once be more efficient and certainly more satisfactory to the people than any heretofore existing.

It will be the duty of the Forest Department to make tours of Inspection, and to see that the rules are carried out, reporting all breaches of the same, either to the district Officer, to the Commissioner of the Division, or, in extreme cases if necessary, to the Chief Commissioner, to explain and report on the resources of the forests generally, to arrange and carry out the pruning of Teak and other regular forest operations, and to work directly the reserved tracts; but in all other cases, applications to fell timber will be made to the District Officers, the tax will be levied by them and the timber will be under their control.

6. To enable the district Officers to carry out the rules, it will be necessary that a portion of the Forest establishment be placed under them, except as regards the reserved tracts, where the establishment will remain directly under the Forest Department.

7. All sums realized from the Forest revenues must be credited in the Treasuries to the Forest Fund, but the Superintendent will include in his annual Budget-estimate the amount required to meet the charge of the whole forest establishment, and will draw pay for all in a monthly bill, to be passed, as at present, in the Department of Public Works, remitting the amount for each district to the district Officer for payment. In the districts of Nagpoor, Chanda, and Sironcha, however, as the charge of the forests has been already included by the Civil Officers for the ensuing year, the district Officers, until its expiration, can pay the establishment as heretofore.

8. District Officers must forward to the Suprintendent of Forests, as early as practicable after the 1st of each month, a memo. of receipts and disbursements on account of the forests during the month preceding to enable him to compile the general statement required by the Accountant's Department.

9. The expense of general forest operations will be provided for by the Suprintendent whether carried out by the Forest Department, directly, or with the aid of the district Officers.

10. You will observe that it is proposed to make the restriction on particular sorts of trees applicable to those trees wherever found. Up to the present time, the right of the State to impose such restrictions has been undoubted, but a new settlement, conferring proprietary rights in at least all the cultivated and occupied land, is being made. In this case, then, it will be necessary in conferring the proprietary rights to add a clause to the Administration paper of the settlement, to the effect that the proprietary right is conferred subject to any Rules that may be made in the Forest Department. But such clause need not be inserted in grants of lands made under the resolution for sale of waste lands.

11. Your early opinion on this reference is requested. In the mean time, you will be so good as to direct the district Officers in your division to cause it to be made known thoroughly to all classes in their respective districts that, with the exception of the trees forbidden in the proposed Rules (*viz., Teak, Sheshum, Sal* or Surrye, *Kowah, Saj, Bijasal* also *Roneah* in Baitool and Hosungabad only, *Ringun* along the Deinwa valley and in Sironcha, and large *Tinsa,* in forests east of Mundla), all people are at liberty at once to fell and take away what timber they require from the forests in all places except in the reserved tracts, as notified in the annexed Memorandum.

12. The Chief Commissioner trusts that, by this arrangement, the dissatisfaction at the system of Forest Conservancy, which no doubt at present exists throughout these Provinces, will be removed, while the really valuable timber may be preserved, and the whole effected (he trusts), at eventually a cheaper rate than at present.

MEMORANDUM OF RESERVED TRACTS.

Saugor District—

1. Gurrakota Rumnah.
2. Shaghurh do.

Chindwarrah—

1. The Sâl forests on the Deinwah (to be worked for the Thakoors who own it).
2. The Teak only in the Boree, Asseer Pergunnahs.
3. The Saj and Kowah forests, at Boregaon, north-west of Deogurh.
4. The Teak along the crest of the Kumharpanee range.

Seonee—

1. The Teak around Tooria.

Mundla—

1. The Sâl forests south of Motee-nala and Toplah up to the Ghât range.

Chandah—

1. The Beejasal forest about Dhaba as defined by Captain Stewart.
2. The forest tract about Moholee.

PROPOSED FOREST RULES.

1. The general restriction on felling timber in these Provinces is withdrawn, and in future all trees will be permitted to be felled subject to the following exceptions and limitations.

2. No wood is to be cut in the tracts reserved by Government except by the Forest Department or directly through its orders.

3. *Teak, Sheshum, Sal* or *Surrye, Saj, Kowah, and Beejasal* wherever found are never to be felled without permission ; *Unjun* exclusively along the Deinsah and in Sironcha, *Rohneah* in Hoshungabad and Baitool, and large *Tinas* east of Mundlah are to be included in the above.

4. Persons requiring the above trees, *viz., Teak, Sheshum, Sal, Saj, Kowah, Beejasal,* and *Unjun, Rohneah,* and *Tinas* in the Districts above specified, must apply to the Tehsildar, or if contractors or others with large requirements, to the District Officer, who will either give permission to fell (or at his descretion withhold it either wholly or in part), and levy a tax at the following rates on all trees which are cut :—On *Teak* or *Sheshum* log exceeding 18 feet in length by 4½ feet girth, a tax of Rs. 2 per log. Ditto, below this size Re 1½ per log ; and half these rates on *Sal, Saj, Kowah, Beejasal,* as well as on *Unjun, Rohneah* and *Tinas* where above specified.

5. Ten logs, however, of *Sal, Saj, Kowah Beejasal,* as well as of *Unjun Rohneah, Tinas* in the specified Districts will be granted by the Tehsildars *free of duty* to all Agriculturists requiring them *bonâ fide* for their own use. But *Teak* and *Sheshum,* in whatever quantity, will always be charged for.

6. Persons making Dhya cultivation are directed not to cut or to burn the above-named trees.

7. No tree of the above-named sorts is to be felled which is under 4 feet (2⅔ cubits) girth at 3 feet from the ground except Sheshum, which may be cut at half the above girth, and all such trees are to be felled within one cubit of the ground to avoide waste. This is to be explained at the time of giving permission, and the penalty for breach of these rules, will be double duty, with liability to forfeit the wood, if the pratice be persevered in.

8. Small Teak for rafters will not generally be given : in places, however, where the Teak is of *inferior description*, District Officers in correspondence with the Forest Department may use their discretion in allowing it to be cut to a certain extent when Rs. 2 a cart load duty will be charged. But as the usual means of supplying this want, the Forest Department, in conjunction with the Civil Officers, will arrange to sell annually in each District a supply of such wood from the prunings of the young Teak, which must be made systematically under the supervision of qualified persons.

9. Timber already felled but not paid for will be subject to the old rates of duty ; the Custom-House at Goaree Ghât will also be kept up for this purpose.

10. But with the exception of the above trees, namely, *Teak, Sheesum, Sal or Surrya, Saj, Kowah, Beejasal* with *Unjun* in the Deinwah and in Sironcha, *Rohnsah* in Hoshungabad and Baitool, and *Tinas* east of Mundlah, all other trees and jungles are free.

Circular dated 17th February, 1863.

From—C. BERNARD, Esq., *Offg. Secy. to Chief Commnr., Central Provinces,*

To—All Commissioners of Divisions.

With reference to Rule XIX of the waste land sale Rules for the Central Provinces, I am to request you will call upon the Deputy Commissioners of your division to submit lists of the lands in their Districts that should be reserved under that section.

2. Inasmuch as some of the Deputy Commissioners of your division have not visited every part of their Districts, it would be well that the purport of Section XIX were explained to Tehsildars, and report called for from them as to the lands to be reserved.

3. As regards lands bearing forests, the best tracts have been already reserved by the Forest Department. If additional tracts ought, in the opinion of the Deputy Commissioner, to be reserved, he can report accordingly, in reply to this reference.

4. There is in some Districts of these provinces much mineral wealth below the soil, and Deputy Commissioners will do well to reserve lands in which veins of coal of iron may exist. Lands in which peculiarly valuable limestone or building stone is to be found should also be reserved.

5. It should be borne in mind that waste lands not included in these lists *must*, hereafter, be sold to any applicant at the upset price prescribed by Government. The State may then lose part of its just dues, if wastes containing valuable mineral resources are sold away on the same terms as wastes in which nothing but the surface soil is valuable.

6. The Officiating Chief Commissioner does not mean that wastes with mineral resources should not be granted to Mining Companies and other parties willing to work mines. On the contrary, he will be very glad to learn that private parties are coming forward to develope the mineral wealth of these provinces, still the interests of the State must be looked to, and wastes, rich with veins of mineral ores, should not be sold at the same rates as less valuable wastes that can be put to agricultural uses only.

7. The lists should be drawn up in the appended form—

No.	Division.	District.	Tehseel.	Computed area.	Causes for reservation.	Orders of Commissioner.	Circular Orders.

Circular, dated the 23rd December 1862.

From—CAPTAIN HECTOR MACKENZIE, *Secretary to the Chief Commissioner, Central Provinces, on Special Duty,*

To—All Commissioners of Divisions, Central Provinces.

The necessity for issuing orders on the subject noted in the margin has been brought to the notice of the Officiating Chief Commissioner.

2. The subject has already attracted much attention. Correspondence and orders upon the wastes in Saugor and Nerbudda Territories, as marginally noted, have passed.

The treatment on revision of settlement of excess of jungle and waste, over and above the requirements of the land-tax paying communities, and not hitherto specially excluded from settlement, and defined as Government Forests.

A. Proclamation regarding New Settlement by Govt. N. W. P., dated 24th June 1854, Paras. 17 and 18.

B. General instructions in regard to Settlement of the S. and N. Territories, Para. 25.

C. Note on Jungle and Waste in S. and N. Territories, by senior member of S. B. of R. N. W. P., record in 1855, Paras. 1—18.

D. Commr. J., to S. B. R., No. 497, of 16th June 1855.

E. S. B. R. to Govt. on above, No. 695, 3rd July 1855.

F. Govt. N. W. P., on above, No. 1589 A, of 20th July 1855.

G. Govt. N. W. P., to Commr. J. No. 1489, of 24th August 1859, Para. 3.

H. S. B. R., to Govt. N. W. P., No. 886, of 8th December 1859, Para. 25.

J. S. B. R., to Commr. J. No. 976, January 1860, paras. 3, 4, and 5.

These papers have been published in the Selections recently printed.

3. A short abstract of this correspondence is given below—

A. Government reserves the right to all large forests, where valuable timber exists, and these forests are to be excluded from settlement.

Government also reserves the right to large tracts of land, either forest or uncultivated. This is not, however, to apply to small portions of uncultivated land or jungle on hills not of much value.

B. Extensive forest and jungle tracts are to excluded from settlement. Large areas of waste, held for pasture only, are to be arranged for specially in view to their clearance.

C. Excepting the three forests of Durassee, Dogur Tal, south-east of Seonee, and Gurrukote in Saugor, no forest lands were excluded from last settlement. At a new settlement, the State can determine regarding the disposal of all such lands, *viz.*, all excess of jungle and waste, within the limits of villages, and all extensive tracts of forest and waste, distinct from village areas.

Owing to the hilly and stony character of these lands, unavailable for agriculture, it would be useless expense for Government to mark off and survey all excess of jungle and waste within the limits of villages for the purpose of making separate farms of the sayer, which, including the right to pick up fire-wood, other rights of "dhaug" and other manorial privileges, the people had heretofore enjoyed and prized. Therefore, although had the lands in question been to any great extent available for agriculture, it might have been advisable to adopt the usual principle of relinquishing a liberal allowance of jungle to the party admitted to the proprietory right, and of assigning the residue in clearing leases; yet, under the circumstances, it has been considered advisable that these lands shall remain attached to the villages to which they have been reputed to belong—and that only extensive and continuous tracts of jungle shall be excluded from the village areas, and from the village settlement.

Although "attached" to the villages, however, the proprietary right would remain with Government, who would concede the right to only that portion of the land which might equal the cultivation of the village. The whole might thus be gradually acquired by the village proprietor.

The manorial privileges would, however, remain as before, over the whole, and be unrestricted. The general interdict against the removal of timber is considered profitless and vexatious, and the conservation of timber should be limited to particular localities.

There are few tracts of waste or prairie land available for pasture grounds, which should be separated from village areas. Such might be reserved for clearance leases. It would be available *ad interim* to farm them where they are not so separated, providing that portion might be assigned to third parties at the end of any agricultural year, a corresponding reduction being given in the village jumma.

D. The lands under discussion are not so hilly and sterile as was supposed by Mr. Reade. Only near large towns should any departure from Mr. Reade's plan be allowed, by marking of prairie lands as he proposed. The particular localities where alone timber should, according to Mr. Reade, be conserved would from the subject of enquiry and future report. The Commissioner entirely agrees with Mr. Reade on every other point.

E. The Board agrees with Mr. Reade, and requests Government orders on his plan.

F. The Lieutenant Governor disapproves of the plan.

If the amount of jungle now reputed to attach to villages be not sufficient to warrant the exclusion from the village settlement of the lands under discussion, it should be at once declared the village property.

G. Government, with reference to Deputy Commissioner Jubbulpoor's letter, No. 59, of 1st August 1859, on another subject, remarks, that although the Deputy Commissioner may not have been in the habit of looking upon jungle and forest as the property of the State, but as attached in every case to one or another village, the Lieutenant-Governor is disposed to think that, on enquiry, many of the villages would be found to have unlawfully usurped possession of the jungle. This point should be specially enquired into at settlement.

H. The right of Government to extensive forest and wastes is unquestioned.

J. Sudder Board of Revenue draws attention to proclamation of 24th June 1854, *a*. Adds that the plenary right of the State to forest and excess of jungle and waste exists in principle, and has been especially reserved; also points out the error which would be committed by the relinquishment by the State of large areas of forest and waste to individuals incapable and unwilling to reclaim them, along with the proprietary right of villages or plots of land.

4. The foregoing abstract probably contains all that has been written with authority on this subject, up to the commencement of 1861. Since then, settlement operations have been going on. The Officiating Chief Commissioner draws from this correspondence the following deductions—

I. The Government right to exclude all these lands from the new settlement has been repeatedly affirmed by high authorities.

II. The term *within* the village limits has, therefore, as applied to these lands, been misplaced. Using that term is simply begging the question. There were no limits defined to villages. What their limits should be was exactly the point under discussion. This was pointed out by the Lieutenant Governor in (G.)

III. The exercise of the right to firewood and other *sayer* or manorial perquisites followed the non-exclusion of these lands from the old settlement. The right, although not specially conferred and assessed, was not reserved. The right goes with the land. As a question of right, it was never separated from the land by being assessed otherwise. The question of manorial rights will therefore present no difficulty in disposing of the question of the land. If the land be excluded from the village area, manorial rights on the land may be excluded also with justice.

IV. It has been repeatedly determined to exclude these lands from settlement.

V. It has been decided by Government that where the land is worth excluding from the settlement, it should be excluded from the village area also, that is to say, it should be separately demarcated.

5. Nothing has, as yet, been done towards carrying out the views of Government in the matter. It, therefore, now remains for the Officiating Chief Commissioner to issue rules, in conformity with which the Officers now engaged in the settlement may give effect to the hitherto dormant rights of the State and accomplish, *viz., the exclusion from settlement, and separation from the village areas, of all excess jungle, forest, uncultivated, or waste lands.*

6. The first point to be considered is the interpretation of the word excess.

7. Mr. Reade, in his note, indicates an opinion that the word would apply to all land over and above that quantity of uncultivated land which should equal the cultivated area of the village.

8. The Officiating Chief Commissoner believes that only a general rule can be laid down on this head. Some estates would be amply provided if 50 per cent. of their area were culturable but yet uncultivated; others would not. Something would depend upon the state of the village and its future probable requirements, something upon the character of the soil. The Officiating Chief Commissioner prescribes the following rules:—

I. Let each Settlement Officer, having examined and disposed of all claims to possession or quasi-possession, direct or indirect, at once proceed to consider this subject of the exclusion of excessive uncultivated area, to which no such claim as above described can be substantiated, but which is included, or about to be included, in the village measurements.

II. Let 100 per cent., as compared with the cultivated area, be the minimum, 200 per cent. the maximum amount of uncultivated land, to which the agricultrual community of a village may be considered to have a claim.

III. In tracts already measured or surveyed, let the Settlement Officer, with the general pergunnah map, and the area statistics before him, proceed to decide generally from what villages a portion of the land included in their measurements falls according to the above rule to be excluded.

IV. Then let him take up each case and decide whether the amount of the uncultivated land to be allotted in proprietary right shall be equal to or double the cultivation, or fixed at any intermediate point, according to the circumstances of the case.

9. Some of the phases of circumstance likely to arise under the operation of this rule are noted.

(1) A village with 1,000 acres under cultivation in the midst of an extensive waste would probably be fully set up with 100 per cent. of cultivated land.

(2) But if it formed one of a group of villages adjacent, but whose cultivation was divided by large plots of cultivated land equally, in the aggregate only 150 or even 200 per cent. as compared with the cultivation, then unless it were found possible by keeping to the 100 per cent. scale, to exclude the remainder in such a manner from the group as should enable the formation of a continuous tract of considerable extent; it might not not be worth while to exclude any of the remainder from the village area.

(3) Similarly, it might not be worth while to exclude the excess in cases where the maximum amount of 200 per cent. were assignable, if such excess could not be formed into a tract large enough to be worth keeping for future disposal.

(4) A village much deteriorated from mismanagement should probably be allotted an amount of uncultivated land approaching nearer to the maximum than thau the minimum scale.

(5) A number of villages belonging to the same proprietor might, sometimes, be appropriately considered together, and room for improvement given in a somewhat more liberal manner in some villages where it was deficient in others.

(6) There will be some embarrassing cases where the cultivation only amounts to very few acres; where the village is more the name of a locality, the revenue perhaps only Rs. 5, and these will be found in parts of the country where the largest tracts of jungle and waste exist. To apply Rule II., even at its maximum scale, would in these cases, be to confine the limits of the village within an extremely small plot of land, or what might seem to be so, when compared with the previous order of things, when the name of the village, applied in common parlance to thousands of acres of the adjacent jungle, perhaps untrodden, and almost impenetrable. Such cases will be more embarrassing also when the little cultivation that exists is scattered in widely distant portions of the forest; or again, when cultivation is not confined to one spot, but is carried on in different places each year.

But these are, out of those very circumstances, the instances where we should be especially careful to adhere to the principles adopted, of "not relinquishing large areas of forest and waste to individuals incapable and unwilling to reclaim them." Accordingly, when a Settlement Officer meets with a village represented, say by a few Gond huts, and a few acres of cultivation, in the depths of a forest extending over several square miles, more or less of hill and dale—he must not relinquish the proprietary right on the whole forest, because from the circumstances above instanced and others similar to them, he cannot exactly decide on the rule by which the right should be confined to closer limits. It must be remembered that, although Government is willing to recognize property right on the basis of possession, yet possessed land is defined, as a rule, to be cultivation, plus, on the maximum scale, 200 per cent of uncultivated land, and that there is no authority for granting proprietary right on other grounds. There whould appear to be two ways of settling such cases:—

Firstly.—Offer to recognize the proprietary right in the cultivation, plus, the appropriate amount of uncultivated land; if the cultivation be scattered, act similarly, arranging the scattered portions as chuks or outlying plots of the main portion, and exclude the remainder.

Secondly—If this is objected to, because the cultivation shifts its locality, or on other grounds, there seems to be no alternative but to reserve the superior proprietary right. Frame the assessment as if the excess of waste were excluded; guarantee possession to the land holders as inferior proprietors or tenants; but reserve the power to include the grant of the superiority of the land in their possession, in the grant of any portion of the excessive waste adjacent, which may, at any future time, be made to a third party; providing, however, at the same time that they, the existing land-holders, or their heirs, shall have the offer, which they now refuse, again made to them before any such grant be concluded.

The Officiating Chief Commissioner does not think it necessary to enjoin that the exclusion should, in any way, depend on the quality of the land to be excluded. The settlement proclamation specifies that hills not of much value would not be excluded. But generally it would be uncertain whether the land to be excluded is or is not of much value. Where it might clearly appear not to be of much value, the Settlement Officer would not trouble himself to exclude it. But the more certain method will be to attend to the amount of land to be included, rather than to the quality of the land excluded

(7) It may be finally added here, that the claims of Talooqdars to manorial rights in these thinly inhabited and scantily cultivated forest tracts may prove another source of embarrassment. Some may require special treatment. All should be carefully and cautiously considered and reported. But difficulty may be avoided by bearing in mind that, generally, the term "Talooqdaree" simply means "superior proprietorship." *Primâ facie*, therefore, tracts of country which, under the current settlement, have been held by Talooqdars, do not require special rules for their treatment in regard to the exclusion of excessive waste But there may, at the same time, be a few cases where the terms of, and circumstances connected with, the original Talooqdaree grant, from which the present possession of the superior right of property in the revenue paying lands arose, are peculiar; and claims made on such grounds should, of course, be carefully examined, and, if valid, referred to the Commissioner for special orders.

V In tracts not yet measured or surveyed, the above investigations should proceed hand in hand with measurement or survey, whichever may be carried out first.

VI. Having decided all the cases falling to be treated under Rule III, a report should be made to the Commissioner whose concurrence will be necessary. This should, obviously, be done previous to assessment.

10. It remains to consider what may be called the Survey arrangements consequent upon the measure of separating the excess.

11 It has been suggested that the excess excluded from Settlement might be treated as a non-proprietary chuk or dependancy of the village from which it had been excluded.

12. The Officiating Chief Commissioner's own impression is, that we had better make an entire separation of the excess from the proprietary village lands. On the one hand, it would be the course most consistent with the principles on which the measure of exclusion is based, and with the Government order marked (F). And on the other hand, the Officiating Chief Commissioner sees in it no counterbalancing disadvantage. Settlement Officers will, doubtless, apply the rules in a liberal spirit. Whatever is excluded may, therefore, be made fully available for any purpose, or in any way the Government may think proper. Should the adjacent proprietors bring their properties into an advanced state of improvement, making the acquisition of the excluded excess disirable, it would be the policy of Government to grant it on liberal terms. No guarantee is needed for this. While the endeavours to earn a claim to its acquisition will, the Officiating Chief Commissioner thinks, be greater, if entirely separated, than if on the chuk system it were so circumstanced, as would make it appear that the proprietors of the village of which it formed a chuk had a preferential claim to it, and, therefore, needed not to exert themselves in the improvement of their own property, until another claimant of the chuk land were actually in the field.

13. The Officiating Chief Commissioner would therefore proceed to rule—

VII. Where measurements have been completed, the boundary line of the new limits must be laid down afresh on the spot, and on the field maps, corresponding information being conveyed to the Surveyor, should the locality have been surveyed, or be under survey, and new Thakbust maps with new numbers must be prepared of the newly-formed Government properties. But where this may be inconvenient, it may suffice to count the new village as a chuk or dakhilee, the property of the State, to be shewn on the map of the original village, without forming a new one.

14. These rules will, the Officiating Chief Commissioner believes, be equally applicable to the districts of the Nagpoor, and, perhaps, also the Chutteesgurh divisions; and Mr. Temple relies on the subject receiving your early and careful attention.

TRANSLATION OF THE LEASE OF THE DEINWAH SÂL FORESTS.

Whereas there stand on my Estate certain forests of Surrye and other trees, be it known that I hereby agree to transfer the management of the same to the State. The "Government" only can, of its own accord, permit any person to cut timber from the said forests. I continue the proprietor thereof and will thereby receive whatever duty or revenue may be derived therefrom, after the cost of Government management has been defrayed; and whenever I, or any of my ryots, require to cut any timber from those forests, we shall do so without permission, and will pursue the Dhya cultivation as heretofore on the Hills. I will, furthermore, take the produce from all Mowah, Mango, Tendoo, Chironjee and other trees which are reared in the said forests.

Dated 13th November, 1862.

SIGNED BY THE JAGEFRDAR,
THE DEPUTY COMMISSIONER AND
SUPERINTENDENT OF FORESTS.

MEMORANDUM ON THE TIMBER-BEARING TRACTS OF THE CENTRAL PROVINCES, BY CAPTAIN PEARSON, CONSERVATOR OF FORESTS, C. P., DATED 25TH MARCH 1863.

SAUGOR DIVISION

Saugor District.—This district is covered with dense jungle of a low character along its northern frontier, as also to the south-east in Rehlee, and more or less all along its south side. Still there is very little timber in the district either of Teak or of other more common descriptions. This is not the fault, however, of the soil, as the Teak of this part of the country is of remarkably fine quality, being called by the natives "Telea Sagoon" or oily Teak, and distinguished from the lighter colored or "Doodheea Sagoon" of Baitool by the beautiful dark wavy lines, for which the true Vindhyan Teak is celebrated.

Although the Teak is nowhere of a size which would warrant its being felled for timber, yet there is much fine young wood scattered about. The best is, perhaps, in the rumnah at Garakottah, which, as well as Shagurh, is Government property; but there are also an immense number of young Teak trees (not exceeding 3 feet in girth) all over the Hills in the Dulputpoor ilaqua, north of Saugor; also in a rumnah near Heerapoor; and (as I have heard), in parts of Rehlee and Jyesignugger, south of Saugor. But all these have been either planted, or, at all events, specially conserved by the Potails of different villages to which they belong, who have had the right to the wood, indirectly recognized by Government, and have in return

always allowed timber to be cut for the requirements of the Department Public Works. I am of opinion (in which the Deputy Commissioner concurs) that it would be a hard measure to interfere with the ownership of this timber, but there would certainly be no objection to placing restrictions on its felling.

I would, however, in the Saugor district, preserve as special reserved tracts the following localities:—*Garakotta Rumnah.—Extent.*—about 10 square miles. *Character.*—This is an old Government plantation; it contains almost exclusively Teak, and from having been wastefully worked during past years, both for the Government departments and for private purposes, very few trees remain which are above three feet in girth, while the bulk are under two feet. The young trees are, however, for the most part well grown and thriving. A young plantation has also been commenced in a portion of the forest, the whole of which greatly requires to be put in order.

Boundaries—are well defined locally.

Shagurh Rumnah.—Extent—about 10 square miles. *Boundaries*—not yet defined, but on the hills to the east of the Shagurh Fort. *Character*—was formerly a preserve of the Rajah, and contains a fair amount of nicely grown Teak saplings. I do not think there has been much large Teak taken from it within the last 50 years, as I particularly noticed that the large beams in the Shagurh Fort, when it was destroyed, were all Saj. There is, however, little large timber in this part of the district, as from the proximity of the Heerapoor iron mines, the forest has been denuded through a long course of years for charcoal.

Heerapoor Iron Mines.—It may be a matter of consideration whether a tract from 50 to 100 square miles might not eventually be planted in the neighbourhood of Heerapoor, with *Boswellia* or other trees suitable for charcoal. From this 32,000 to 64,000 tons of timber for charcoal, adequate to the manufacture of (allowing that 4 tons of wood gives one charcoal, and that the charcoal used in smelting will be threefold, the weight of the iron produced) 2,500 tons of iron annually, might be produced.

District Dumoh.—A large portion of this district, especially the north-west pergunnah of Futtypoor, Mangurh east of Dumoh; and the whole tract extending south of the Dumoh and Jubbulpoor Road, and along the Kuttinghee and Patan range of hills, as far as Taradeh, is an exceedingly dense thicket. A forest it cannot be called; as it hardly contains a single tree of any kind which would yield timber, and is exclusively composed of scrub jungle. There are several patches however of young Teak in the southern portions of the district, but I am of opinion that it would unjust to interfere with it further than to place restrictions on its fellings, as it owes its preservation to the exertion of private individuals. I do not recommend the special reserving of any tract in this district.

Hoshungabad District.—The forests in the Hoshungabad district extend along the Taptee River from the Baitool frontier near Sowleegurh in the east, to the Chota Towah in the west, on the frontier of Borhanpoor. This is a tract of about 80 miles in length by 20 in breadth, and is known as the Kaleebheet Forest. This is the only large forest that I have not as yet personally explored, but Mr. Beddy, the Assistant Commissioner of the Hurdah, told me that although the Teak was rather plentiful, it was entirely of small scantling. Indeed, for many years, the timber merchants of Seonee (Hoshungabad) have ceased to draw logs from here. The Railway sleeper Contractors also have fought shy of it, declaring there was no timber there suited to their purposes. Lieutenant Forsyth was to have explored this forest last year, but was prevented by sickness from doing so, I will take opportunity of carrying this out. This eastern portion of it, however, belongs to the Rajah of Muchrye, who is an entirely independent Thakoor. His territory probably covers 700 to 800 square miles.

There is also a fair forest of Saj and Rohneah near the junction of the Towah and Deinwah, and there formerly was also some good Saj jungle in the Deinwah valley north of the Puchmurries near Malnee. The latter has, however, been nearly cleared of all large trees by the supply of sleepers to the Railway line. There is also a nice tract of young Teak near Bunkeree on the extreme east frontier of the district, which, however, I believe must be allowed to belong to the malgoozar in the same manner as that in Saugor.

As regards reserved tracts in Hoshungabad, after further examination some one must be selected in the Kaleebheet Forest, and it will be well to reserve perhaps also a small tract near the junction of the Towah and Deinwah, as just in that place the timber seems to thrive particularly well.

Baitool District.—The greater portion of this district, known as Sowleegurh, has been in times past covered with a fine forest of Teak. There are four ferries of Borahs established at Baitool, who are Agents for houses at Indore and Oojein, and have worked these forests regularly for the last 30 or 35 years; and through whom the greater part of Western India, away from the seaboard, including the large cities of Oojein, Indore, Odeypoor, Ajmere, &c., have been supplied with Teak from this locality. A large amount of Teak has also been expended in building the towns of Seonee (Hoshungabad) and Hurdah, where the fronts of the houses are almost exclusively composed of this wood, beautifully carved. The consequence is, that the forests now contain few trees over three feet in girth, and by far the greater portion mere saplings.

There is a fair amount of Saj, Hurdoo, Rohneah and some Kaim, and Kadamb in these forests. The requirements of the Railway for sleepers will, however, greatly diminish the

amount of the commoner sorts of jungle trees. Messrs. Howd, Winton and Mills, the Contractors for No. 16 Contract on this line, and Wassodeva, an Agent of the Railway Company, are now cutting sleepers in these forests, a Royalty of 4 annas being charged on each sleeper.

The Teak producing tract in Baitool may be said to include the whole of the district north of the Ghât Range and west of the Baitool and Hoshungabad Road, being an area of about 1,000 square miles. From this, however, must be deducted the Borda Talook, which is a freehold or jagheer estate, comprising about 250 or 300 square miles, and some portion of cultivated lands, probably 300 square miles more. This would leave 400 square miles, but of this all is not a Teak tract, and I should recommend that four tracts, averaging from 50 to 75 square miles each, be selected from this tract for special reserve, and be defined as soon as possible. One of these tracts should probably be near Shapoor, east of the fortress of Bowergurh, one near Kutunga in Chicholee, one near Gowasein, and one near Dabree, or in Jamgurh. Perhaps the Raneepoor Hills, east of the road from Baitool to Hoshungabad, may include some tract worth preserving, as Teak was formerly obtained from these Hills, but I am not at present aware of any spot.

Jubbulpoor Division.

Chindwara District.—The forests in this district are very extensive, but the whole of those situated to the north of the station of Chindwara belong to the Gond Thakoors of Adygaon, Nurryee, Sonapoor, Almode, Puchmurree and Buridree. The sole exception is the Raikheree ilaqua, in which is contained the Boree Teak Forest, which was forfeited by Baboot Sing for rebellion. These forests consist of Teak, Saj, Sheshum, Kowah, and most of the commoner jungle trees in abundance, and there is a fine Sâl Forest in the Deinwah valley south of the Puchmurrees.

There are also forests of an extensive character all along the south face of the Satpooras, extending from Deogurh in the west to the Pench River, and so on to Korye in the Seonee District. These belong to Government. The large Teak throughout has been all cut down, and nothing but saplings remain, but there is some fine Saj scattered all along the range which, however, the requirements of the Railway for sleepers must necessarily very much diminish. Indeed, when the line is completed, I fear little will be left. Messrs. Lee, Waston, and Aiton, Contractors for the Nagpoor branch, and Ramasamy Modeliar, on account of the Railway, are the parties now cutting sleepers in these forests. The tracts which I recommend to be reserved in Chindwara are as follow :—

1*st. The Pench Forests*—extending from Kumharpanee along the Ghât Range as far as Korye—a portion of this tract lies in Seonee. *Extent*—about 150 square miles, being about 30 miles in length, by 5 broad.

Boundaries.—The extent of the jungle to the north and to the south, the limit of the Teak tract which is generally the foot of the southern slope of the Satpoora Range.

Character of the Forest.—Generally a forest of young Teak saplings with some fine Saj trees, and a considerable amount of Mowah. The Teak is all very young ; not a single large tree remaining. There is generally a large amount of Mowah trees scattered over this tract.

2*nd. The Deogurh Forest.—Extent*—100 square miles.

Boundaries.—To be defined hereafter, but the tract lies along the Kanhan River, to the north and west of the Deogurh Fort.

Character.—A forest of fine Saj trees extends over about 20 square miles. The rest is more scattered ; but it would be advisable to take in about the amount of area above specified.

Remarks.—The principal object in reserving this tract is, that it would form a convenient forest for the supply of Railway sleepers in future years. A lakh or more of sleepers would be available here if care was taken in preparing them ; and I really feel considerable apprehension as to how any sleepers for renewing the line can be furnished from these forests for 20 years or more, unless some precaution of this sort is taken.

3*rd. Boree Teak Forest.—Extent*—about 150 square miles.

Boundaries.—The Puchmurree Hills to the north and extending over the villages of Boree, Errapilla, Godree, Sarma and down south as far as the Sonebudr River and the Asseer Fort ; east, the boundary will be the limits of the Almode Thakoor's land.

Character.—The whole of the above is essentially a Teak bearing tract, but it has been entirely ruined by Dhya cultivation ; very little timber has been exported from here, owing to the great difficulties in carrying it away, the only practicable route being to the north-west into the valley of the Towah. Still about 650 of the finest logs I have ever seen in these forests were cut by a Mr. Whittaker for the Railway, before I took charge near Errapilla, west of Boree ; and if Dhya cutting could be stopped, I have no doubt that in the course of years, a fine Teak Forest would spring up. If the villages were not entirely removed to other localities, it would be necessary strictly to limit the places where Dhyas are to be cut. The people know no other cultivation whatever in these remote valleys. As there will always be some difficulty in removing the timber, perhaps only certain portions of this tract, which might be carefully marked off, should be reserved.

4*th. Deinwah Sal Forest.—Extent*—about 100 square miles.

Boundaries.—This forest extends from Jamundoongree along the Deinwah valley, close under the Puchmurrees, north and east towards Jhirpa. It is by far the finest near Delakaree.

Character—A level forest. The Sal trees are large, but not generally very straight. They are also a good deal knotted, but well suited for sleepers.

Remarks.—A special agreement was made with the Puchmurree Thakoor, whereby this forest was to be worked by the Forest Department, all profits being handed over to him. This was done with a view to prevent the waste of the wood, as it contains the only large timber now left standing in these parts. The Thakoor refused to sell the forest outright, and this was the only understanding the Deputy Commissioner was able to arrive at with him on the subject.

Nursinggoor District.—No forests in Government hands.

Seonee District.—The District of Seonee entirely consists of jungle tracts, interspersed with cultivated areas. Several circumstances, but especially its proximity to Nagpoor and Kanotee, have combined to denude the southern forests of all good timber, while to the north the character of the soil does not appear favorable to its growth. Formerly the Doongratal and Durassee Forests were said to have contained fine Teak, which, however, must have all gone to Kamptee and Nagpoor, as none now remains. East of the Doongratal Forests, are the forests of Utturwanee and Sonawanee. The former does not contain any good timber, the trees being chiefly stunted, Saj, Dourah, Salee, and other commoner trees. Sonawanee in the south-east conner of the district, where the Ghât Range turns up to the north, is a vast bamboo forest and contains some fine *Beejasal* and *Tendoo;* but generally the good timber has been carried off from here. Also a few miles north of Sonawanee there is some *fine Saj* on the Ghâts near Kunjaiee. This is of small extent, but may be kept with the same view as the Saj in Deogurh; all along the Wyn Gunga, there are a few patches of young *Teak* in places; but cultivation is extending so much, that it is doubtful if we can retain much regular forest here, while the heads of villages will readily guard the young Teak for their own benefit, if encouraged to do so; they may be prevented by special orders from felling it without permission.

All along the north side of the Seonee district, from Kidderpoor in the borders of Mundlah to Durgurrah on the borders of Nursingpoor, the hills are more or less covered with Teak. But it appears to me that nowhere over this tract does the Teak assume the form of a timber tree; as soon as it grows up 5 or 6 feet it throws out branches and makes no progress in forming wood. There are numerous trees of all ages in this tract, and there seems to be no difference in this respect.

I should propose to reserve the following tracts in the Seonee District:—

1. The *Pench Forests.—Extent*—as defined under Chindwara, in which the greater portion of them lie.

2. The *Doongratal* and *Durasee Forests.—Extent*—400 square miles.

Boundaries.—These forests have been reserved for the last 30 years, and the boundaries are defined in the Revenue records. I would, however, only include the portion of the Durassee Forest below the Ghâts, as I have never been able to obtain a purchaser at the yearly auction for the portion of it which lies towards Seonee.

Character.—This tract contains Mowah, Catechu, and low jungle suited for fire-wood. The privilege of cutting and exporting fire-wood, as also a right to the Mowah and Catechu, is annually sold by auction to the highest bidder. Last year the sale fetched Rupees 1,605. All good timber had, of course, long been cut in this tract. There is a little small Teak in places which will be guarded. Perhaps some more useful plan of working this tract for fire-wood, by rotation, might be adopted.

The Sonawanee Forests.—Extent—120 square miles.

Boundaries.—The clump of hills at the south-east corner of the Seonee district, which forms the angle in the Ghât Range of the Satpooras, also the large ravines north of Kunjaiee.

Character of Forest.—A dense bamboo forest, with a few fine Beejasal, and Tendoo trees remaining; and some fine Saj trees near Kunjaiee.

Character of Forest.—The object of reserving this tract would be that, perhaps, it might be advisable in future to from a Teak or other plantation here. There is no expectation of obtaining much timber at present from it, except as regards the Kunjaiee ravines where the Saj may some day be valuable as a reserve for renewing the Railway sleepers. The cartage (about 100 miles to Nagpoor), is too long to make it profitable to fell them at present for this purpose.

4. *Silwa Flat.*—This is a plot of land at the foot of the Silwa Ghât, on the road from Seonee to Jubbulpoor, and extending along the Toieah Nullah, which appears well adapted for forming a plantation along the north slopes of the Satpooras. *Extent*—10 square miles.

Jubbulpoor District.—Boundaries.—To be defined hereafter, and part of this tract may probably extend across the Toieah Nullah into the district of Jubbulpoor. Besides the tract last named, there does not appear any necessity for making any reserved tracts in the Jubbulpoor district. This district contains but little forest land and that much scattered. North-east of Jubbulpoor, about Narrainpoor, the hills have been denuded by the charcoal burners, as iron is largely manufactured, and the jungle is chiefly a dense scrub of low thickets, which, however,

suffice to supply the general wants of the charcoal burners. There are a few patches of Sal any young Teak along the Mahanuddee, which the general forest restrictions will suffice to protect from injury.

Mundlah District.—Owing to the great facilities for carrying away timber afforded by the Nerbudda, and also to the depredations of Contractors for the Railway, previous to any restriction being put on the felling of Teak, the Mundlah Forests bordering on the Nurbudda have become literally denuded of everything both large and small, in the shape of Teak trees. There are still, however, scattered about a number of good Sheshum, Saj, Kowah, Beejasal and Hurdoo trees along the Nurbudda, and in the southern portion of the district bordering on Kamurdah, the fine Sal Forests still remain intact. I should propose here to reserve the following tracts :—

1. The *Rajadhar Sal Forests.—Extent*—about 400 square miles.

Boundaries.—The Ghât Range to the south. The extent of the Sal tract to the east near Toplah, and to the west near Mowye, and extending to the north down the valleys of the Halon and Phen, as far as Sal is found.

Character of Forest.—Near Toplah in the Halon valley is a remarkably grand forest of about one square mile in extent, nearly continuous, and composed of huge trees, few of which are less than 8 to 10 feet in girth, and 40 to 60 feet in height. The rest is more scattered—as regards the Halon valley; while in the valley of the Phen, the trees are more in close clumps of about half a mile in area, interspersed with fine grassy glades. The trees are more straight, and not so large as those in the Halon valley. On the north and east, towards Mowye, much injury has been done by Dhya cultivation.

2. *The Sal Forest in the Bungur valley.*—These are across another range of hills to the west of the former forests.

Extent—100 square miles.

Boundaries.—The Bungur valley between Mujgan and Bheemlat.

Character of Forests.—The Sal is very thick, in small clumps, and is straight, but in no case has grown to any size. It is scattered and of no great extent, but I think it would be advisable to reserve the right to this tract.

3. The *Googree Forest.—Extent*—200 square miles.

Boundaries—A strip of land extending along the Nurbudda above Ramnugger.

Character of Forest.—At present entirely denuded of Teak, and nearly so of other timber, but from the facilities afforded by the Nurbudda, it would seem to be a desirable locality for future plantation.

Nagpoor Division.

Nagpoor District.—The district is almost entirely under cultivation, and the forests have long since disappeared from it. There is, however, a small tract of about 20 or 30 square miles, north of Ramtreah, which may be conveniently reserved, and added to the Doongratal Forest as a reserve for the supply of fire-wood and bullios to Kamptee and Nagpoor.

Chanda District. 1. *Dhaba* Forest.—*Extent* and *Boundaries*—to be defined hereafter. *Character*—a forest of Beejasal.

2. *Morlee Forest.—Extent* and *Boundaries*—to be defined hereafter. Described by Captain Stewart as worthy of reservation.

I have never visited the Chanda district. I believe, however, that there are several splendid forests in this district (especially the Teak Forests of Aheree) which are entirely out of our power, being situated in free-hold estates.

Bundara District.—The forests between Lanjee and Saleetekree in this district are very dense, the hills being covered with an interminable thicket of bamboos, while in the valleys a fine forest of Saj, Dowrah, Sheshum, Tendoo and Mowah is to be found. This belt of jungle extends full 40 miles in breadth, between the plains and Saleetekree, and belongs to the Thakoor of Saleetekree, who lives at Beejagur. There is all over this district a fair sprinkling of young Teak, but on enquiry I found that the whole, with very few exceptions not worth recording, is in the possession of Zemindars.

Wurdah District.—There is no forest land belonging to Government in this district.

Godavery Talooks.—It appears from Captain Stewart's reports that the Sironcha district contains some good Teak and a reserved tract to be defined hereafter, must be marked off somewhere in the neighbourhood of the Godavery, where future explorations may point out as most desirable. It is probable also, that the young Teak along the Godavery will also require some special measures for its future protection. These must he determined hereafter.

Chutteesgurh Division.

This has not been as yet explored. Lieutenant Forsyth, Assistant Conservator of Forests, is now employed in exploring these jungles, and when their value and resources have been somewhat ascertained, it will be possible to judge as to what measures it will be most advisable to adopt with regard to them.

We have, then, a list of tracts in which it is proposed to reserve entirely in the hands Government the right of cutting all timber. These may be briefly summed up as follows :—

SAUGOR DIVISION.

Saugor District—

1.	Garrakotta Rumnah ...	10	square miles.	
2.	Shagurh ,, ...	10	do.	
3.	Heerapoor (for charcoal) ...	100	do.	... 120 square miles.

Hoshungabad District—

1.	Kaleebheet Forests (to be selected hereafter)	200	square miles,	
2.	Towah and Deinwah do. ...	20	do.	... 220 square miles.

Baitool District—

1.	Four tracts each	75	do.	... 300 do.

JUBBULPOOR DIVISION.

Chindwára District—

1.	Pench Forests	150	square miles.	
2.	Deogurh Forest	100	do.	
3.	Boree Forests	150	do.	
4.	Deinwah Forests	100	do.	... 500 do.

Seonee District—

1.	Pench Forests (included in Chindwara) ...			
2.	Durassee and Doongratal...	400	square miles.	
3.	Sonawanee	120	do.	
4.	Silwa Flat	10	do.	... 530 do.

Mundlah District—

1.	Rajahdhar Sâl Forests ...	400	do.	
2.	Bungur do. ...	100	do.	
3.	Googree do. ...	200	do.	... 700 do.

NAGPORE DIVISION.

Nagpoor District—

1.	Ramteah Forest	40	square miles	... 40 do.

Chanda District—to be hereafter defined.

Godavery Talooks—ditto.

CHUTTEESGURH DIVISION.

Total reserved area	2,410 square miles.

It is not to be supposed that this tract of 2,410 square miles is at present a productive forest. I believe, however, that, with due care, it contains the elements of being made so in the course of time, and with this end in view, I have made the above selections.

John G. Hirons, P. W. Dept. Press.—1865.